



MUSEUM OF
VERTEBRATE ZOOLOGY
REPRINT LIBRARY

Digitized by the Internet Archive
in 2017 with funding from
CLIR

<https://archive.org/details/fieldnotesv140800kofo>

Cat Pg #2141

Koford, C.B.

catalogue

1800 - 1957

1956 - 1957

Barro Colorado
Panama

Journal

C. Koford
1956

1

Specimen Catalog

July 12 Barro Colorado Island, Gatun Lake, Canal Zone

1800 ♂ Alouatta palliatus 483 tot. length; 413 gms.
Imm. Died in captivity. Bought in Panama by Hugh Willmar.
July 18
1801 Snake.

Pickups on Donato Steps. Dead. No head.

July 19
1802 Bufo

Night, in grass, E. end New Lab.

1803 ♀ Rattus rattus ^{spineg. rot.} 417-235-34-21; 133 gms
Trapped night inside Old Lab. Nippled wide, 2 high. Impref. vag. ut. horw
37 long + 2 wide; dark gray.

1804 ♀ non repro. activity. Myotis nigricans 77-32-8-12; 39 gms
Found dead at Kitchen.

July 10
1805

Bat. Small young.

skull July 17 Found alive by Carl Rettmeyer near New Lab. In ^{formalin} ~~rot~~
1806 Alouatta Pickups. In water at Boat Landing.

July 19 1807 ♂ Proechimys semispinosus 458-203-57-24; 490 gms.
Brownish, white vent., rot.

Trapped edge water, evening. Fleas, mites, small ticks on. Large
seminal plug penis. 5 fleas, 3 ticks, 100+ mites. Large seminal plug.
Testes huge, 37 x 19 mm. Epid. with milk (semen?). Much swollen
seminal vesicles.

1808 ♀ Proechimys semispinosus Rot. 428-187-53-23; 444 gms.

Same trap 2 hrs. later (10 pm.). Vag. perf. 8 mm. diam. Nippled
clitoris not segmented. Ut. horw. 40 x 4. RH 2 bulges 15 mm. diam,
perhaps recording. 1 yellow corpora 1 mm. diam. L H 4 blood
scars; L ovary 3 corpora, yellow, 1 mm. diam. 5 stomach worms.

1809 Bat. Small young. In alcohol.

Found alive in Chapman House by Carl Rettmeyer.



Choford
1956

2

Specimen catalog

August 2 Barro Colorado Isl., Canal Zone (Kitchen)

1810 ♀ Proechimys ^{semi spinosus} Rat, brown downy, white below. 318-138-44-21, 188 gms.
light fat. No emb. At. long 30x 1/2. Vag. impreg. Nipples & vulva no pigment. Nip. & tarsus.
Pulp & veg. matter stomach. Shell broken. 6+ mites & lice.

Aug. 22

1811

Salamander. Reddish night forest floors.
Allee Creek 100 yds. N. of New Lab.

Aug. 28
1812

Frog; black, green spots back. On boulders day,
Lucky Stream near Donato 100.

Sept. 9 Val de Anton,

Panama

1813, 1814 Atelopus varius. Coll. Hugo Wilmar about Aug. 31. Donated to B.C. Island & picked today. (One informant, 1 in alcohol).

Sept. 28 Summit

, Canal Zone

1815 ♂ test. 8x 4. 1mm. Culuromys derbianus

615-375-40-33, 200 gms. Dead on road. Shell smashed.

October 3:

1816 Frog.

2" nose - rump. white belly

& throat. Dark brown back, lighter on sides. about 3 1 mm. wide irregular black specks between ear & shoulder. Salt & pepper posterior thighs. Pale tip nose. In R.O.H. direct. Table at Zetah office at night.

October 10

1817 1mm. Sigmodon hispidus) Caught evening, stays Chapman House.

October 10

1818 Leucosticte Test Table Bldg.

October 24

1819 ♂ test. 13 1mm. long Pipra mentalis 14 1/2 gms. Mr. white iris.

Flew into Chapman House & against screen. Tarsipale brown,

Ko Ford
1956

3

Specimen Catalog

- October 23 Barro Colorado Is., Canal Zone. (New laboratory) ^{Mist net,}
1820 ♀ Mo~~Passos~~ coibensis 93-31-9-14, 18½ gms. stomach full.
Slight fat. No emb., put possible scar uterus. R nippule enlarged (1x1).
1821 ♂ Mo~~Passos~~ coibensis 94-33-9-13, 18½ gms. Slight fat.
Test. 4x2½. Throat gland prominent. Stomach full.
1822 ♂ M. coibensis 97-35-9-14, 16 gms. Died in refig.
Test. 4x2½ mm. Slight fat.

October 30

- 1823 ♀ Empidonax ^{virens} _{sp} 12 gms. slight fat. 1 mm. skull 4/5 ossified
Died of injury in mist net.
- 1824 ♀ vag. perf.; ut. 10x1½ mm. Artibeus liberatus ^{21" wingspan} _{70-0-9-22; 75 gm.}
Mist net, 8 p.m. (rainy earlier). Loud high chirps when bird. Pr. Chapman House.

October 31

- 1825 ♂ test. 1 mm. Tanagra laniirostris 11 gms.; pink feathers.
Chapman House; mist net; 7 a.m.
- 1826 ♂ ^(no specm) test. 4x3 mm. Glossophaga soricina 62-8-11-13; 11½ gms.
October 30 ♂ test. 4x3 mm. Forearm 23. Wing spread 240 mm. Very long slender tongue. 1.5 inches
2 mm. above center patagium. Mist net, Chapman House, midnight.

November 2

- 1827 ♂ t. 7x5 Artibeus jamaicensis 85-0-15-21; 50 gms.
Mist net 11 p.m. - Chapman House.

November 3

- 1828 ♂ t. 5x3 Saccopteryx bilineata 69-19-11-19; 7½ gms.
Bittern. Southern Van Tyne trail big tree, 10 a.m.

November 4

- 1829 ♂ t. 13x7 Zugodontonyx cherriei 207-94-23-16; 54 gms.
Inside New Lab; trapped. Many dead.



Specimen Catalog

Nov. 4 Barro Colorado Is., Canal Zone1830 ♂ t. 4x3 *Artibeus cinereus* 51-0-12-14; 11 gms.

Net nr. Chapman House.

End. fall. Rov.

1831 ♀ vag. perf.; nipp not end. *Vampyrodes major* 78-0-15-22; 17 "ungaged"

Mist net nr. Chapman House (same time as 1830+ an artibeus ♀.)

Nov. 7 Frijoles, Canal Zone

(Common at Gamboa on walls)

1832 Small lizard Yellow head & throat; black body. On car in house

1833 Barro Colorado Island, Canal Zone1833 *Thelodactylus rapicaudus* Ceiling, Barbour Point house. Gray, brown, & white mottled back; dirty pale gray beneath; iris yellow-brown; vertical pupil. Locally called "scorpion." Large eye, no lid.Nov. 31834 ♀ t. 4x3 *Saccosternyx bilineata* 70-16-12-16; 7 gms.

Van Tyne trail, Big tree, between Luttrell's. Netted daytime.

Nov. 71834 ♂ 5x3; scut. naked, black. *Rhynchisus naso* 50-11-7-10; 2 gms.

One of 3 hanging under tin roof over boat in boat house.

Nov. 9 1835 Cocoli, Canal ZoneSKIN, & body SK. 1835 ♀ no repro. actiu. *Cyclopes didactylus* 350-196-30-10

Coll. W.E. Lundy. Crossing road night. Died 2 days later.

November Barro Colorado Is., Canal Zone1836 ♀ no emb. *Leptophylla robusta* 72-10-12-17; 15½ gms.

Chapman House, mist net, about 9:30 p.m. Vag. perf.; nipp 2 mm. long.

1837 ♀ no emb.; nipp 2 mm. *Vampyressa nymphae* 56-0-10-18; 12 g.

Fate Faint dorsal stripe. Chapman House, mist net. Yellow ear margin & stripes.

November 141838 ♀ vag. imp.; nipp. <½ mm. *Sigmodon hispidus* 230-104-31-19, 60 gms.

Tall grass, snags, Plantation Point.

Banded

+6

605 - return

blood s. { T. sinuata 59-16616 RT #1
T. fulvaria 59-16617

Specimen Catalog

1956

- Nov. 17 Barro Colorado Is., Canal Zone. (Clearing)
- 1839 ♂ Nasua narica 1155-565-115-40, 11 lbs.
Testis 25x20mm. Sand skull + R humerus.
- 1840 ♂ Nasua narica 1035-455-105-40, 11 lbs. Test. 30x20
Previously marked (per R lateral foot toe clipped) on Oct. 14. Sand skull + R hum.
- 1841 ♂ Nasua narica 1145-54⁰-110-40 , 13 lbs. Test. 25x17.
Sand skull + R humerus.
- 1842 ♂ Nasua narica 1115-550-110-39 , 12 lbs. T. 22x17
Tache eyes ear.
- 1843 ♀ Nasua narica 1020-510-100-39 , 7½ lbs
1/3 grown juv. m. trap.
- Nov. 20 Gamboa, Canal Zone
- 1844 ♂ ^{+ ♀} Amazilia tzacatl 4 gms. at porch light at night.
- Nov. 19 Summit Gardens, Canal Zone
- 1845 ♂ Uroderma bilobatum 62-0-11-18, wgs pd. 12", 17 gms.
Under tent in leaf talipot palm. Test. 3mm. mod. fat.
- 1846 ♀ U. bilobatum 64-0-11-18, 17 gms.
- Nov. 20 Barro Colorado Is., Canal Zone. Net at Bl ½, night.
- 1847 ♀ Artibeus cuniculus 56-0-12-17, forearm 40.
- Nov. 21
1848 ♂ Artibeus cuniculus 58-0-11-16.
- Mist net, betw. 10 p.m. & 2 a.m. 58-0-11-16.
Released 2 min. of same; grown but gray, soft fur.
- 1849 ♂ Artibeus jamaicensis 83-0-17-23. Imm.?
Taken betw. 7 p.m. & 8 p.m., mist net.
- Nov. 22
- 1850 ♂ Centurio senex 53-0-13-16, 15½ gms.
Mist net, Ketchum, 9 p.m.

Specimen Catalog

1956

Nov. 22 Barro Colorado Is., Canal Zone.1851 ♀ nips 1 mm. *Uroderma bilobatum* 59-0-10-18, 17 gms.

Edge clearing nr. New Lab, evening, mist net. 4 mm. bulge in uterus.

1852 ♂ t. 4 mm. *Molossus coibensis* 95-33-11-13, 15 gms. Wgspd. 10½."

Mist net nr. Kitchen, 8 p.m.

Nov. 231853 ♂ *Artibeus lituratus* 96-0-20-24, 58 gms.

Mist net edge clearing w. of New Lab, evening.

Nov. 241854 ♂ *Carollia perspicillata* 78-11-13-21, 21 gms. 13½" wgsd.Mist net edge clearing S. Chapman House 8 p.m., with *Uroderma bilobatum*.1855 ♂ t. 3 *Uroderma bilobatum* 61-0-9-18, 16 gms.

13" wgsd. Same as 1854.

1856 ♂ nips 1 mm. *Vampyrressa minuta* 46-0-9-14, 7 gms.

Chapman House, mist net, about 10:30 p.m. 9¼" wgsd.

Nov. 25 Orchid Island, Canal Zone [Island across to N. from Orchid]wsprd 9 3/8" 1857 ♂ t. 6+5 *Micronycteris megalotis* 60-12-9-22, 6 gms.

1858 ♂ t. 6+4 " " 59-11-9-22 5½ gms.

1859 ♂ t. 7×6 *Micronycteris hirsuta* (xenocytes) 79-16-12-26, 15½ gmsIndarhest sentry box on Orchid Is. side of French Lock
(w) 5+ in bunch; no others found.1860 ♂ t. 7×4 *Carollia perspicillata* 78-14-14-19, 21 gms.
(allowed too much tail)

Normal ears? In sentry box east side French Lock.

♂ novemb. t. 6×4

1861 ♀ nips 1 mm. *Carollia perspicillata* 72-8-13-19, 18 gms.

Same place as 1857, 8, 60. Larger ears than 1860.

Nov. 24 Barro Colorado Is. C. Z. Chapman

12" wgsd.

1862 ♂ *Artibeus cinereus watsoni* t. 4×3 59-0-10-18, 12 gms.

Mist net, Chapman House, evening.



Specimen Catalog

Nov. 28 Barro Colorado Is., Canal Zone

1863 ♂ t. 4x3 Chiroderma isthmicum

13½" wgs pd.
64-0-10-18, wt. 22

Edge clearing nr. Chapman House 8 p.m. (w. artib. lit. palm.)

Nov. 29

1864 ♀ no emb. C. isthmicum

68-0-13-18, wt. 23
wgs pd. 13½"

1865 ♂ t. 3x2 C. isthmicum "

69-0-12-18, wt. 20

1864-5 same net as 1863, next a.m. Ear yellow.

Dec. 2 3 mi. SE Gamboa, Canal Zone

Hips 2 mm, black.

1866 ♀ no emb. Saccopteryx leptura bilineata 74-18-11-16, 8 gms.

1867 no emb. " " 73-19-10-16, 12 ¾" wgs pd.

Both on screen under eaves Mrs. Barrett's house, 10 a.m.

+868 discarded

Chilibrillo Caves, Chilibre, Panama

1869 ♂ 5x3 Phyllostomus hastatus 152-23-24-35, 120 gms.

One of group 20+, mostly dark gray.

1870 ♀ 1 in. Phyllostomus hastatus 141-24-22-33, 85 gms.

Many imm. with few red-brown matenes.

-1871 1 in. discarded

1872 ♂ t. 4x3 Saccopteryx bilineata

76-21-10-16, 7 gms.

Mr. entrance inside limestone cave.

1873 ♀ no emb. Carollia perspicillata

73-8-13-22, 16 gms.

Hundreds in cluster on ceiling limestone cave.

1874 ♂ t. 6x4 Carollia "

74-11-12-21, 18 gms.

Testes scrotal. But ♀♀ breeding?

Dec. 5 Barro Colorado Island, C.Z.

1875 ♀ Noctilio (Diricig) labialis

16½" wgs pd.

89-18-15-23, 25 gms.

7:50 p.m. in net 40' upstream from stream below kitchen. Veg. open, mod. prair. Rigs. 2 ½ mm, but 3 mm. banana surrounds.

C. Koford
1956

8

Specimen Catalog

Barro Colorado Is., Canal Zone

1876 ♂ t. 4¹/₂ Chiroderma isthmicum

67-0-12-17, 23g.

Same net as 1875, at 10 p.m.

Dec. 6

1877 ♂ t. 5¹/₂ Artibeus jamaicensis

19" wgd
90-0-18-22, 57gms.

good facial stripes + yellow-white troque.
forearm 66. Mist net, Lutz Trail, after 10 p.m. pres. eve. 6 mites (memb.), 1 fly.

1878 ♀ Artibeus jamaicensis

90-0-18-23, 48g.

Poor facial stripes, gray troque.

forearm 61. Nipple 3 mm. long, 3 wide, mod. turgid, mod. pigmented. Vag. open +
lips mod. pigmented.

skull
only

1879 ♂

Molossus brasiliensis Frijoles, Canal Zone.

9 Bat. Pickup in after R.R. Station.

9

Dec. 8 Barro Colorado Island, Canal Zone

nullip.

1880 ♀ Artibeus cinereus

wg pd. 11"
34-0-9-16, 11gms.

Mist net at boat landing, 15' from shore, in a.m.

1881 ♀ Chiroderma isthmicum

wg pd. 14¹/₂ forearm 47
72-0-13-20, 24gms.

Mist net in Chapman House betw. 11:30 p.m. & 6 a.m.

no emp.

1882 ♀ t. 4¹/₂ Artibeus jamaicensis

85-0-15-23, 46gms.
wg pd. 18" forearm 64

Prob. lactae. Rov. pink; left white, smaller. V. wide perf. clit. pigm. 1st mites +
Mist net between Chapman House + banana tree to S.E., betw. 10 p.m. & 1:30 a.m.

Dec. 10

Nipp. 3¹/₂ mm.

1883 ♀ Artibeus lituratus palmarum

forem. 73
96-0-18-25, 80gm.

Same net as 1882 in morning after 2 a.m. & ov. 1.8 with white spot

.6 mm. diam.; Rov. pink, 3¹/₂ mm. diam. Vag. wide open, lips pigmented.

Dec. 11

1884 ♂ t. 7mm. Artibeus jamaicensis

83-0-15-22, 50gm. forearm 61.

Mist net at tank W. of 1952 lab.

1885 ♂ t. 5¹/₂ Artibeus lituratus

forearm 72 85-0-13-25 , 50gms.

Mist net on edge clearing in night or a.m.

1886 ♂ t. 3 Carollia perspicillata

71-10-14-21 , 20gms.

1887 ♂ t. 6.7 Artibeus jamaicensis

forearm 58 84-0-15-22, 50gms.

Dec. 12

Mist net, a.m., in Chapman House, with 1887. Forearm 45, wgd. 14"

1888 ♀ ^{ov.} _{inactive} Chiroderma isthmicum

60gms.
68-0-12-19 , 22g.



C. Koford
1956

9

Specimen Catalog

Dec. 23 Orchid Island [N. shore], Canal Zone

1889 ♂ t. 2x1 Micronycteris hirsuta 69-11-13-25, 119ms.

In concrete Sentry Box in daytime with 3 others in bunch.
⁽¹⁰⁹⁻²²⁹⁾

1890 ♀ ov. inact. M. hirsuta 73-12-12-21, 13ms.

1891 ♀ ^{nip. tiny} ov. inact. " " 68-13-12-23, 103ms.

Dec. 27 Frijoles, C. Z.

Skull only

1892 ♂ Eumops abrasus

forearm 59

Mummy

1893 ♀ " "

" 58, tail 44

Mum.

1894 ? " "

" 58, tail 41

Mum.

1895 ♂ Molossus coibensis

" 37, " 29

1892-95 mummies on floor attic of RR station.

1957

Jan. 3 Barro Colorado Is., Canal Zone

1896 ♀ remb. C-R 15. Glossophago soricinus. 66-9-10-15, 119ms.

Nip tiny, hairy. Emb. 10x15 bulge. Mist net, clearing, nr. 1952 Lab.

Hd. ut. 4mm. forearm 39

1897 ♀ Rov 2mm. Artibeus watsoni 54-0-10-17, 169ms.

Nips. 2x2 mm; slight pigment.

1898 ♂ t. 5x3 Vampyromes major

forearm 57
78-0-12-22, 339ms.

Mist net 5M 1 evening.

1899 ♂ t. 5x3 V. major

fore. 54
79-0-13-22, 339ms.

1900 ♂ t. 5x3 V. major

forearm 55
80-0-14-22, 389ms.

1901 ♀ ^{remb.} t. C-R 13 V. major

nips 2x2, yellow, A. Vulturib. pigm.
84-0-15-21, 369ms.

1902 ♂ t. 6x4 V. major

84-0-13-22, 329ms.

Jan. 12

1903 ♂ Centronycteris maximilliani 78-21-7-18, 59ms.

Hand net evening at 5M 1/2. (skull broken)

1904 ♀ ^{nip ~ 1/2 in.} no ov. activ. Micronycteris megalotis 57-15-9-22, 579ms.

1905 ♂ t. 1 1/2 long " " 42-12-10-21 40ms.

1904-5 in Tower House with Saccopteryx bicolor.

C. Koford
1957

10

Specimen Catalog

Jan. 11 Barro Colorado Island, Canal Zone
skull only 1906 ♂ Mazama americana

Poacher killed. Ad. ♂, testis. size first finger man.

Jan. 13

o.n.e.
1907 ♀? Phaethornis superciliosus 5 1/2 gms.; no fat.

Netted edge clearing W. of 1952 Lab. Killed self in screened room.

Jan. 26

sk. & skel. 1908 ♀ Tamandua tetradactyla 1013-52C-96-42, 8165.

Nip 4 wide x 3 high, no pigment. Vulva white, no virgin. No enlarged foll.

Jan. 28

t. 2 1/2 diam.
1909 ♂ Florisuga mellivora 6 gms.

Mist net edge clearing nr. Chapman House.

Jan. 29

Phyllostomid - face stripes
1910 ♂ t. 6 x 4 Artibeus cinereus 55-0-9-16, 12 gms.

Mist net, paper slope N. of 1952 Lab.

9 Feb. 1957 Gamboa, C.Z.

1911 ♂ Rhynchosciurus naxo 43-9-6-10

Killed hanging near garage door - daylight

Fort Kobelo, Colon, Panama

1913 ♂ t. 5 x 3 Glossophaga soricina 65-9-10-16, 9 gms.

1912 ♂ t. 5 x 4 Carollia perspicillata fore 43 75-11-13-21, 16 gms.

These in rather dark rooms of old flat at west edge town.

12 Feb. 1957 Barro Colorado Is.

1914 ♂ Carollia castanea forearm 36 65-12-10-18, 10 gms.

1915 ♀ 1 cm^b Carollia perspicillata 76-10-12-21, 19 gms

Nip tiny, unpegin. Vag. perf., slight pigment. 2 flies; 10 diggers.

1914-15 in mist net edge clearing near 1952 Lab.

Specimen Catalog,

1957

Feb. 22 Barro Colorado Island, Canal Zone

- 1916 ♀ Glossophaga soricina fo wgs pd. 10 1/2" forearm 36
emb. c-R 30, TL 43. Nip 2x1, mod. pigm.
Inside hollow large espous in Bat Cove, hanging to wall 5' up.
- 1917 ♀ Glossophaga soricina. 67-7-11-15, 13g. forearm 37
emb. c-R 22. Nip 1 1/2x1, (slight pigment). Shot with 1916.

March 5 Panama, prob. nr Panama city.

skull only 1918 Sylvilagus

Pet from cage in Summit Gardens.

March 10 Summit, Canal Zone

- 1919 ♂ Rhogeessa parvula 77-33-7-11, 8 1/2 " wgs pd
Forearm 30. mysts like, pale belly.
Dead under clump tall bamboo. (found by Rolf R. Koford)

March 13 Gamboa, Canal Zone

- 1920 ♀ o.n.e. Spizactus No fat.

Shot by palenque; perched near road.

- March 20 ♂ Empire, Canal Zone 153 gms., no fat.
Nyctibius griseus

1921 Testis 7 mm. long. Shot night; perched vertically atop reeds.

April 5 Ft. San Lorenzo, elev. 10' Canal Zone.

- 1922 ♂ t. min. Natalus [?]mexicanus ^{saturatus} 95-49-9-12, 50 gms.

- 1923 ♂ t. 5x3 1/2 Glossophaga soricina leachii 60-7-11-15, 100 gms.

- 1924 ♀ emb. c-R 27 ^{wt. 3.3, forearm 18, wet w/o plac. Nip 2x1 in., pigm.} Gloss. sor. leachii 68-8-10-14, 16 gms.
fore. 35 1/2

- 1925 ♂ t. 4 1/2x4 Gloss. " " 65-8-10-15, 10 gms.
fore. 45

- 1926 ♂ t 8 1/2x6 1/2 Carollia perspicillata azteca 81-13-14-21, 20 gms.

- 1927 ♀ emb. c-R 29, haired Carollia perspicillata 74-8-13-20, 24 gms.

Nips 3mm wide, furred, black, milk expressed; lact. tissue; forearm 40 1/2.

1922-1927 in sea cave 10' high + 8' wide, 100' deep; at base cliff

NW of Fort. 200 \pm Carollia + 50 \pm Glossophaga present.

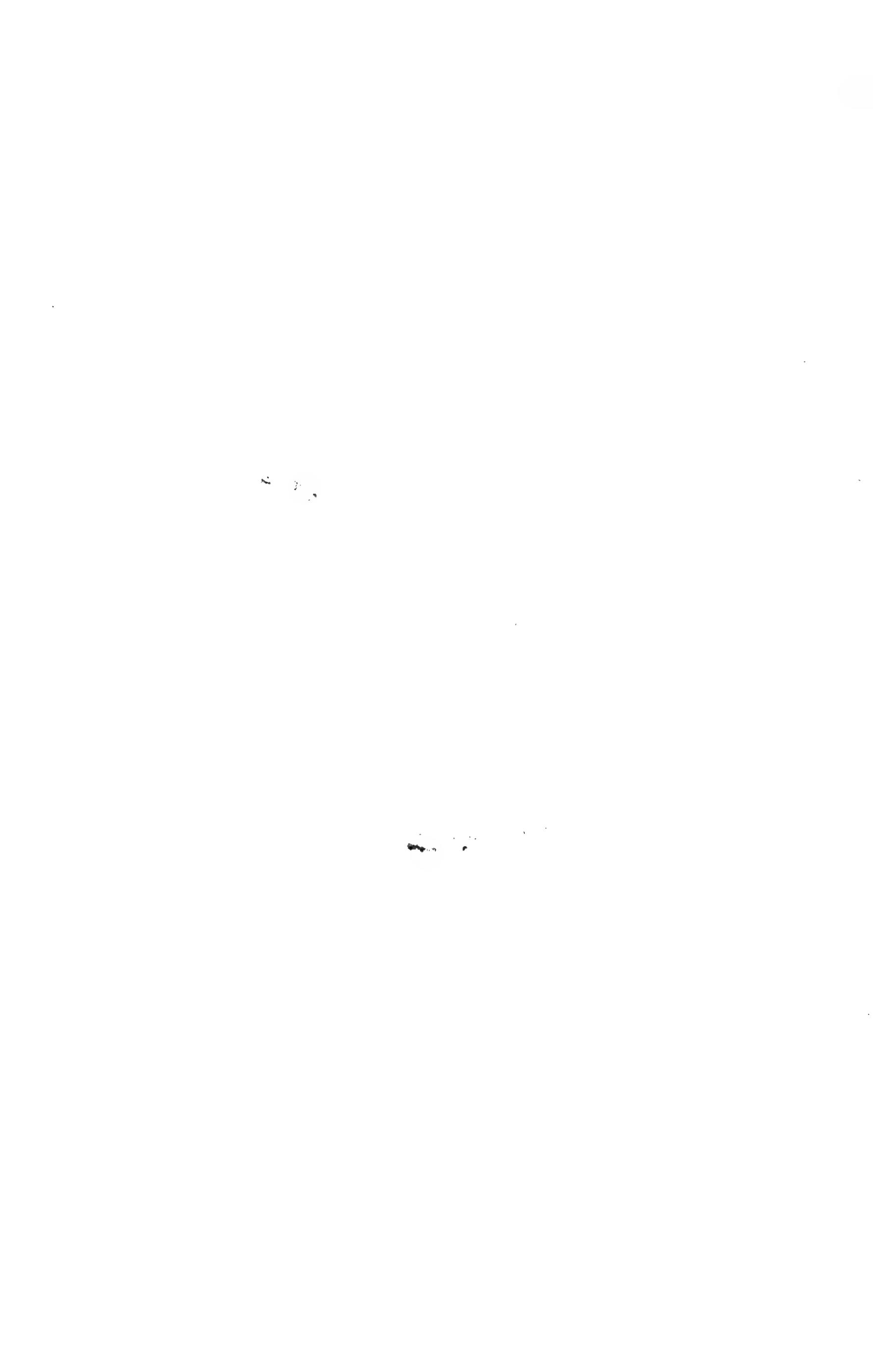
c.Koford
1957

12

Specimen Catalog
Panamá

April

- 17 2 mi. N. Summit, Canal Zone [Sardanillo Mine]
1928 ♀ Lonchorina aurita 109-49-13-29, 13½ gm.
wgsd. 14"; Lact. tissue. Black nipp. 3x3 mm. Fm. 52. Ut. 10 long, ^{Value} slight pigm.
T. 3x2 mm.
1929 ♂ Lonchorina aurita 107-57-13-29, 13 gm.
1930 ♀ Lact. L. aurita 112-53-14-29, 13½ gm.
nipp. 3x3, black. Ut. 17x7 (ent.).
1931 ♀ emb. C-R25 L. aurita 108-51-14-28, 15½ gm.
at. 2.5 mm. long (empty)
Nipp. 2x2, black, bare around. Cmb. fund. 25x15 in number, wt. 3 gm.
1932 ♀ Lact. L. aurita 112-52-13-28, 12½ gm.
Nipp. black, 3x2 mm., ut. 14x2.5.
1928 to 1932 in old mine tunnel 100' deep, 6' high, wet rocks.
1933 ♂ ^(+Dinias) Noctilio labialis 97-23-13-20, 22½ gm.
T. 4½ x 3½, brown. Ch. yellowish red-orange.
fmw. 61; wgsd. 13½.
1934 ♂ ^(Dinias) Noctilio labialis 95-22-14-19, 22 gm.
T. 4x2, 1933-34 in same tunnel as Batilia & Zanclo. above,
24 April 4 mi. E. 1 mi. S. Pacora, Panama - [La Jagua Gun Club]
1935 ♀ Lact. Micronycteris megalotis microtis 63-13-11-19, 12 gms. wgsd. 10½"
clinging juv. 2 gms. fmw. 15, gray fur, wgsd. 4".
1936 ♂ imm. Phyllostomus hastatus pan. wgsd. 23"
136-21-21-29, 86 gm.
Shrub brush grassland bordering savo forest in savannah area.
1939 ♀ emb. C-R21 chito. Micronycteris meg. mic. 61-12-10-20, 7½ gm.
nipp. & v. not pigm.; nipp. 2x2 x 1 h. In hollow log with 1935.
25 April → 290?
1937 ♀ 4 cm b. 290? Light forest in savannah land.
rag. nipp., nipp. not ent.
1938 ♂ t. 4x2½ Oryz.
1940 ♀ Lact. Marmosa 167-97-21-10.
Base stamp in 6' tall second growth forest. mango bait. No juvs. attached.
1941 ♀ Lact. 290.
Light second growth in savannah area. 226-90-14-16, 75 gm.



Specimen Catalog - PANAMA1 May 1957Gamboa, Canal Zone

1942 ♀ 1emb. C-R 19 Saccopteryx bilineata 60-15-7-12
wgd. 11", frm. 42 mm. Net 8 p.m. edge clearing.

2 May 1957chilibre, Panama [Chilibrillo Caves]

1943 ♂ t.n.e. Pteronotus s. suapurensis 90-23-12-18, 15½ gm.,
frm. 53, wgd. 13½"
1944 ♂ t.n.e. " " " 90-25-10-17, 15 gm.
1945 ♂ t.n.e. " " " 88-24-11-16, 15 gm.
1946 ♂ t.n.e. Lonchophylla robusta 73-10-12-15, 19 gm.
1947 ♂ Desmodus rotundus murinus 86-0-18-17, 35 gm.
t. 8 X 6 frm. 57, wgd. 14"

1948 ♂ t. 7 X 6 " " " 88-0-14-16, 39 gm.

all near ceiling caves of limestone. 1943-45 in solid brush 2-500'. 1947-8 in narrow side tunnel, dark, water on floor (pools). Also in cave Hesperoptuga, Carollia, Phyllostomus hastatus, Saccopteryx (near entrance).

Madden Wye, Canal Zone

1949 ♀ 1emb. Artibeus jamaicensis j. 80-0-16-19, 55 gm.
frm. 61. Nip 2w x 1h, pink.; roo. lips pigmented. 1emb. C-R 31

1950 ♂ t. 7 X 5 Artibeus j. j. 89-0-17-19, 48 gm.
frm. 63.

1951 ♀ Artibeus j. j. 89-0-18-19, 49 gm.
frm. 64. Nip. 3wx 2h, black n. ob. bulge 6 X 6.

skel.
1952 ♀ Artibeus j. j. 87-0-18-19
1emb. C-R 16

Discarded imm. 41 gms., ♀, forearm 60.

1949-52 in attic concrete gasoline storage house.

chilibre, Panama. [Chilibrillo Caves]

skel.
1953 ♂ Pteronotus s. s.

skel.
1954 ♂ Phyllostomus hastatus pan. 148-18-25-30
t. 7 X 7, 4 X 3
144-19-24-29



C. Koford
1957

Specimen Catalog - Panama

July 11 Barro Colorado Island, Canal Zone

1955

1955 ♀ Tonatia amblyotis

101-21-16-34 30 gm.

frn. 51, wgsd. 15"

with another inside open-bottomed old termite nest, 12' up.

1956 ♀ Micronycteris

57-13-9-19, 6 gms.

One of bunch hanging from ceiling Tower House. wgd. $9\frac{1}{2}$ ", forem. 34
(♂ juv. 4 gms. in bunch too, + 2 ♂♂, + another).

1957 ♂ ^{b. 3x2} Micronycteris

50-14-9-20, 6 gms.



Coford
1957

Journal

13 May 1957

To San Isidro del General, Costa Rica

Sue and I left San José by bus for San Isidro at 6:20 a.m. Bus went via Cartago on paved road, then on dirt road where life had a more primitive look. The road climbed through cut-over cloud forests where there was a scattering of 100 ft. tall narrow crowned trees. Trees carried many reddish-leaved bromeliads & many lichens. Apparently much cutting of logs, the squared 15' long pointed sections lying by road at many points. At highest, perhaps 10000 ft., road passed through an island of páramo zone, dominated by an elongate-leaved shrub about 5' tall. Rocks covered here with gray lichens. (Archie Carr & later Alexander Skutch told me this was the northernmost páramo). On occasions saw distant volcanoes, or the ocean to W. down steep green valleys. Descended steep-walled forested slopes to the broad (3 mi.) valley of the río General, and reached San Isidro. This at present end of Pan-American highway. Arrived at 1 p.m. Lunched on black beans & rice at El Jardín. Found Juan Schröder about 2 p.m. (we had met him in San José at Pension Canada). He spoke English well, had been to the agricultural school at Zamorano, & had a farm near San Isidro. His father an old-timer with large finca, and a friend of Skutch. Juan took Sue & I in his jeep over a rocky road, across a river reaching above floor of jeep, across a cable suspension bridge that sagged 2 feet as the jeep passed, & up a jeep trail to Skutch's place, about 12 miles from San Isidro, & probably not reachable by jeep except in dry season (wet just starting). Juan said Skutch did not like jeeps in his place, but for him would not mind. We went to the small house surrounded by lawn, garden trees, & fruit trees. Skutch appeared out of a nearby shack - he had been getting a haircut. His wife (nee Lancaster, 3 yrs. married) was with him. We talked birds mostly, & the area & region.

Choford
1957

2

Journal

13 May 1957

San Isidro del General, Costa Rica

Sketch about 50 or 55, his wife perhaps 40. He seemed a mild gentle shy man. Features somewhat sharp, and complexion somewhat dark. He showed us his notes. He takes field notes in small notebook. Then writes into a journal, continuous, in school-type bound notebooks, in ink. at left margin is index - species, and kind of behavior. The many volumes of these notebooks kept in a square large-suitcase sized box. A smaller elongated box holds index. Sketches on a sheet for each species, & under subheads such as "nesting" a series of numbers (volumes & page of notes w/o in notebooks). Visible library was small - about 6 shelves about 5 feet long, many of the books being on politics, psychology or religion.

We went for a walk in the 100 acres of forest near his house, where he does most of his work. Heard matmats, woodcreepers, Tinamus. Almost no trails - he said less trespassing thus. We thought the forest near climax, though I saw no trees over 3' diam. (Brosimum utile). Much leaf mold & leaves underfoot - fibrous organic matter diggable with fingers to depth of a foot or more. Slope gentle. Heard & saw Cathartes. Some soil mounds as of a Geomyidae rodent (macrogeomys?). S. said agoutis present. He showed us nest of a Melocoptila - a deep hole in forest floor with entrance a mere pocket-fist-sized, among twigs. We saw a buff-rumped toucan & its nest (on the ground!). A rushing 15' wide rocky river near the house. Torrent flycatcher said common here.

A. D. knew almost nothing of Sarcophagushus or its nest, & had never seen nest of turkey vulture. He said he had never known of a jay or howling monkey in that valley.

A. D. regretted he had only room for one to guest (we were 2). His wife talkative, mild, & interested in his work, but apparently forgetful as she repeated same questions several times at intervals. Juan said they rarely left the finca - perhaps once a year - and that A. D. had

Journal

13 May 1957

San Isidro del General, Costa Rica
 few friends among local people. Apparently he likes
 the isolation - he had been here 20 years (gaps road
 to San Jose, ^{opened} only last 12 years ago). Recently A.S.
 had published a thick book on "the search for the
 divine," but we did not discuss this. (A review in
 Spanish by Archie Carr in ^{recent} philosophical paper of
 Univ. C.R.). apparently Sketch had never heard
 of my condor work, & I suspect that he paid
 little attention to what other ornithologists were
 doing. He did no farm work himself, tho
 Juan thought he had on his place a family which
 farmed & paid rent in produce. Bananas growing
 nearby, & coffee in surrounding area. Elev. at Sketch's
 about 2500 ft., & of San Pedro about 2200, A.S. thought.

16 May 1957

Boquete, Chiriquí, Panamá

We flew via COPA from San Jose, C.R., to David, over
 thick evergreen forests of southeastern C.R. David low
 and hot, but 11000 ft. Volcan dominates the view.
 a good paved road about 25 mi. up to Boquete,
 at 3800 ft. Town lies in bottom of a forested bowl,
 but much forest second growth, & much coffee
 growing on steep slopes. We stayed in house
 overlooking town, loaned by Mrs. Marita Marcias
 of Panama (cage bird fancier). Mod. rain.

17 May 1957 We climbed several hundred feet up
 a slope to the Piedra del Loro, where we had a fine
 view and took a few 35 mm. pictures.

18 May 1957 Hiked up a road to NE of town, &
 a short distance into forest. Heard many interesting
 but unrecognized bird songs. Good camping for
 collecting spot here on side roads. Saw several
 small-billed green-toucans in patch forest next
 to a cafetal. Mounds suggested gophers or forest
 floor.

19 May 1957 Flew back to Tocumen, Panamá.



1956-1957

Koford, C.B.

Species Accounts

Banco Colorado Isl.

Panama

Mammals

Birds

1956 - 1957

Cebus capucinus

September 16, 1956

I saw one descend from tree and go under hill house & road through vines to eat and "wash face." "Face," a pet of Wimber (prostygaster), was in this cage yesterday, before the time one had been released successfully. Wimber, in afternoon a sort of sun-worshiper, was also seen "wash face" house.

September 18, 1956. I went up hill house road, along a bank another day, saw more monkeys, especially *Alouatta*.

September 23, 1956. Apparently the dense foliaged tree 50 yds. SSE of Chapman House being used as food tree, for *Cebus* seen there almost every day recently, at least 3 there this morning about 6:30 a.m. Also fairly common along the trails - seen 2 or 3 times more often than *Alouatta*.

October 2, 1956. Still common near clearing. In a.m. about 9 saw 3 (\pm) in broad leafed tree 100' SSE of Chapman House - favorite tree at this season. On West Van Tyne trail saw one on ground in path, about 4 in trees near. Often seen in same places as *Alouatta* tho usually at different times. October 13 + 14, 1956. None seen near Chapman House these 2 days. Nor by Oct. 23. Apparently a certain tree lost attractiveness. A white hawk apparently after two *Cebus* on Oct. 17 near New Lab.

July 27, 1956 Carl Rettemeyer notes. 6+ DC 3-3.5 about 10 a.m.

December 8, 1956. Fairly common. Saw in Balson. Chapman House and nr. JVT 2.

December 16, 1956. Saw one visit 3 kinds of flowers in success-



Koford
1956
1957

2

Cebus capucinus

December 16, 1956

Barro Colorado Is., C.Z.

ession nr. Chapman House and seen to eat central part inside or something there. Few flowers today, perhaps because of seed feeding.

December 22, 1956. Unusually frequent along TB from 5 to 10, in trees & palms, often calling.

January 3, 1957 In early evening one seen going from flower to flower in balsa tree s. of Chapman House.

January 5, 1957. At least 4 seen near WNW 3. At least 3 on AVA near 520. One of these without tail but jumped about nimbly.

22 January 1957. Two at 4:30 p.m. in almendro at point SE of boat dock, apparently eating almendro nuts.

23 January 1957. Two in almendro NW of kitchen apparently feeding on fresh crop almendro nuts. At Nasua also high among branches.

26 January 1957 three about 2 p.m. feeding on fresh almendro fruits in tree 100' Nw of Kitchen.

1 February 1957 a few in almendros near 2nd in morning & evening apparently scrapping surface of leaf off nests.

16 February 1957 About 4 p.m. I saw two in balsa next to Chapman House. They went from flower to flower, apparently eating or drinking something from within.

5 March 1957 None seen in balsa or almendro near buildings in last week or 2. Almonds nuts all gone, & balsa seedling & foliage scraggly.

20 March April 1957. Went on to 2nd SE of 1924 Bldg. in mid-afternoon. No young seen yet this year.

c. Koford
1957

3.

Cebus capucinus

4 May 1957

Barro Colorado Is. 22°

Rainy season seen + heard much more frequently than
Alouatta, though believed to be more common.

28 May 1957

9-12 a.m. saw group near Tower, SM 6, & another site. Much
more activity than in dry season at this time of day.

C. Roford

1956

Alosaia palliata

September 1, 1956

Same area island, analysis

(continued) 10 days in all. One day to day, a total
of 300's steps. Three young seen at reef, and at
least 5 adults found near a big sheet of kelp.
A few miles off shore at first, but if tide goes down
drowned by waves, and when away from the beach, go
to open water. Feeding option can be seen in water
like this, many, if a lot of young families will be
around with, are willing to eat little food, and
then come to an open area, a lot of kelp
for a place to swim and catch fish.

After one day in open water, they will
move back to reef. Sufficient time, but travel not slower
than 2 miles or do not make particular coast long
of course in to water.

October 2, 1956 One alone apparently sick on
fork of branch 75 yds W of Old Lab. Little movement,
no sounds, & no response to sounds by me. It had
white area on tail about halfway to end ~~white~~
Morning of Oct. 3 still there - probably sick tho
pelage in good condition. Gone by noon Oct. 3. Dr. &
Mrs. Gregoire on Oct. 4 saw 1 ♀ & juv. with 3 ♂'s near T B 18,
One male had cut & swollen upper lip.

September 29, 1956. Near Chapman House a group of 5 in-
cluding a half grown young.



Alouatta palliata

October 24, 1956

Barro Colorado Is., C.Z.

At 8 a.m. a group of 5 100 yds. NNW of 1924 Building, apparently ♂, 2 imm., 2 others (♀?). One imm. ^{with} each of the two larger for several many minutes, but later two imm. mauling one larger one. all had bats in neck, suppurating. Some scratching of bat swellings. They plucked Cecropia leaf stalks, ate stalks, let leaves fall. I took some photos with 12 $\frac{1}{2}$ " lens, flash, 3 $\frac{1}{4}$ " x 4 $\frac{1}{4}$ ". Male watched closely two Cebus below, 100' away.

July 26, 1956 Carl Rettemeyer noted. 5+ in fig tree base hill nr. TB 5.5, probably eating figs (almond ant). 10 a.m.

August 4, 1956. 3 large ♀ with large young on backs. 9 total, 10 a.m., BL 14.3. At 12:15 p.m. 12 in same tree, including young.

November 10, 1956. In mid afternoon two groups of about 5 on S SE side clearing near 1924 Bldg. One group had 2 $\frac{1}{4}$ grown with it. In balsa & other trees. Apparently eat bats.

December 6, 1956 Several in & near a large Ficus at N. side of SM 1/2. Many fig scraps dropped. Figs green, $1\frac{1}{2}$ to $3\frac{1}{4}$ " diam.

December 11, 1956. At least 4 in same Ficus at 8 a.m.

December 13, 1956. Two at least in Ficus 100 yds. from above.

December 29, 1956. Two near AVA 7. One (young or?) came close, & down to 20' above 2 boys, broke off sticks, & defecated.

January 15, 1957. Near TB 10 saw 4, ones about half grown with apparent mother, all laying in near-bare tree top.

16 January 1957. At least 4 seen in tall fig near 52 1/2.

Alouatta palliata

16 January 1957

Barro Colorado Is., C. Z.

A group of about 10 passed along edge clearing below the House in afternoon, strung out 100+ yds.

19 January 1957 Saw one or 20' overhead near Tower. No others found.^{near}

2 February 1957 Fabert Indus saw one ^{small} young clinging to adult in transit near SM 1.

16 February 1957 Near AIA 3 I saw at least 8, at least 2 being juvs., in larger tall fig tree. One juv. very small, perhaps 1/5 size adult; other about 1/3 grown.

Mr. P. Hanes reported a clan with ^{a small} young near Miller 10.

5 March 1957 Near B1 & saw 10 including a tiny "babe in arms" clinging to side of mother. All silent and high in crown of tree. Morning chores about 5:45 a.m. still. On 3 March I saw 5 in top of Bambocarpia Fendleri near SM 1 1/2. Eating small tufts of new leaves, or bases of same, & throwing them down. I took several photos of these (2 1/4 x 2 1/4, Graflex 12 1/2 "lens").

9 March 1957 A group of about 50 scouts & parents were stationed along about 11 miles of trails to count monkeys 7:30 to 10 a.m. Each pair had sector 700 to 1100 meters long. Results of counts rather poor, a total of 23 howlers and 41 Cebus being reported. Largest group of howlers 5, and often 1, so evidently many members of groups missed. Some inexperienced and may never have seen a monkey in the wild. Method could work with preliminary training of people & familiarization trails and monkeys. Putting best bikers on trails most distant from lab introduces error. Many camped at trail ends so as to be on the job early.

Alocathus pallidus

17 March 1957 Barro Colorado Is., Janal Zone

Last evening mother & baby on low branch of a *Cecropia* about 100 yds. SE of Chapman House, at 7 p.m. Still there 6:10 a.m. but soon departed. Young ^{very} small, clinging to mother.

6 April 1957 At 10 a.m. at TB 10 saw a group of 5. One was carrying a "pig" in its mouth.

13 April 1957 At least 5 in cecropias & other trees 50 yds. SE of 1924 Bldg. Two, carried a small young. Young one clings upside down to chest mother as she climbs along branches. Some of group hopped when gasoline engine at 1924 Bldg. started. 9 April in p.m. there were 2 or 3 in same tree near 1924 Bldg.

20 April 1957 At least 5 in same place as 13 April. Heard screaming at 11 A.M.

27 April 1957 Found skeleton, tarsinter still feeding on parts, in bed Alles Creek about 200 yds. above 1952 Lab.

3 May 1957 Saw at least 5 including small young separated from mother at TB 0. On 30 April saw about 8, perhaps some groups, at AVA 2.

7 May 1957 a lone ♂ eating figs in tree near TB 6. Rat especially large.

28 May 1957 Saw group of 3+ at BL 2 about 9 a.m., & at 11:45 a group of 5+ at 3M 1½.

1 June 1957 Saw 1 and heard others 100 yds. to left (going out) of AVA 13, about 10:30 a.m.



Koford

Nasua narica

July 18, 1956

B C Island, Canal Zone.

Several near buildings every day. Cook fed leftover food on lawn. Tails expressive, up high when several together, probably lowered in submissive attitude. A tame jaguarundi brought within 15'. One coati walked to 8'; tail high. When man chased both coatis the jaguarundi ran after them. Mr. Wilmer, photographer, said coatis disappeared at one time earlier this year, then returned again to headquarters area.

July 25, 1956 About noon two half grown seen with two different adults (4 juvs. in all) on lawn at Haskins Blog.

August 7, 1956. The bunch of Juvs on lawn near Hatchery include 7 juvs., about 1/4 size adults.

September 9, 1956 Hugo Wilmer has had about 5 imm. and 3 adults in an enclosure for about 2 weeks. I trapped one adult & 4 young & marked them. // Adult ♂, 40' total length, 13 $\frac{3}{4}$ lbs. I clipped fur of crown, slit left ear D, cut off LF toe 111X (medial). Testes appeared abdominal. Chlorophonal recovered, ^{wore} later ~~recovered~~ & released. // Imm. ♀, slit R ear, 1150 gms., clipped crown, cut off toe LF 111X, 1111. // Imm. ♂, slit R ear, 900 gms., clipped fur R rump, cut off toe LF 11+11 1111. // Imm. ♀, 1350 gms., slit L ear, clipped toe LF 1111 1111. // Imm. ♀, 1050 gms., slit L ear, cut off outer front L toe. // Imm. squeal much when held. One adult came as if to attack me under two different young taken.

54321	6789 10 X
50 40 30 20 10	60 70 80 90 100

Marked cooties

LF ~~1111+~~ medial ad. Sept. 9

~~111+1~~

~~11+11~~
3

~~1111~~

~~1111~~
5
~~X1111~~

10

RR ~~111X~~ Oct. 19 ad.

Nasua narica

September 16, 1956

Barro Colorado Is., Canal Zone.

The family of 7 young coatis were up at kitchen. Red paint (Tester's tape) gone from foredud one, but clipped fur evident. Collars left open 7 days ago.

October 14, 1956. Sue K. says she saw a small young near kitchen. Several dark-green seen there almost a week ago. One adult has injured left hind foot & holds it well above ground always. Trapped this one in Nat. L. T. Co. trap. Weighed 11 lbs., or. Slit 1 ear, other already slit. Cut off outer toe R Front foot. Anesthetized for 1 min. with ether in $1\frac{1}{2} \times 1\frac{1}{2}$ ft. cage. It was 6 minutes out of cage before it could stand; walked 4 min. later. Painted L side back orange. This one has slit cut near right nostril & holds L H leg up when walking. Teeth indicates adl. Tester scrotal. Gray on sides. Recovering from this other, one of first acts was to lick tail. I trapped another or, tester scrotal, darker color. Weighed $11\frac{1}{2}$ lbs. One ear already slit. Escaped in handling. Some odd to this one in traps. No parasites or molt apparent on either animal.

October 23, 1956. The orange one still hanging around kitchen (#10 toe off). Oct. 21 one seen there with deep slash to bone across back; cut 4" long & open but did not seem to hinder animal much. One climbed lime tree within an hour after & hung a Hummingbird feeder there & turned it over. Several times a feeder found on ground recently, often with branch broken - apparently coati work.

Nasua narica

November 17, 1956 Barro Colorado Is., C.Z.

Trapped some around buildings & examined. 1155-56 9-115-40, 11 lbs., ♂. Mod. fat. No ectop. found. Octavia Souza examined for ^{endo-} ectoparasites. Testis 25 x 20 mm.

January 9, 1957. Trapped a ♂ 11 lbs. at 12.15 h. ^{Thurman} for examination in Chapman's lab. Testis 25 x 20 mm. Found testes, clitoris, vulva, & rectum about 20 mm. long. Guts measured 1400-450-110-40, 10 lbs., testis 25 x 19. Found baculum, R. humerus, skull (cooked slowly).

16 January, 1957. Saw 2 or 3 near AUA 8, & 1 about 5-2-14, seen more often than Dasyprocta far from lab.

23 January 1957 Saw 2 at least 40' up in almendro tree.

Probably feeding on bunches of almendro nuts. Cebus doing same.

JAN 27 1957 Killed a ♀, 8 lbs., near Kitchen. Examined by

R. Enders. No embryos, but slight slight pigment lines vulva & on nipples. Red dagger clusters on ears & some nipples. Enders saved skeleton. We saw about 15 (only one juv.) on Kitchen lawn at mealtime. Heliodoxa still feeds there although she has orders not to.

31 January 1957 Saw 3 by green eyeshine about 20' above ground in tree to SE of Chapman House about 8 p.m. Trapped & killed 10 lbs. or, testis, near kitchen.

4 May 1957 Saw 19-24 Bdg. about 4 scraggly, leaning pregnant females occasionally seen. No young seen yet. Often during last few weeks have seen 1 to 4 in large Baccharis going from fruit to fruit as if eating ants or other insects there.



Tamandua tetradactylus

July 24, 1956

B.C. Island, Canal Zone

Saw one where Donato trail enters forest from clearing, at dusk. It nosed about old log, then uphill went. Paid no attention to me.

September 29, 1956 Saw one about SM 3 climbing tree near the hollow strangler fig.

December 8, 1956. Saw 1 nr. TB 9. Climbed tree & crossed over on stem palm leaf 20' above ground.

December 16, 1956. Saw one about 11 a.m. near TB 28 going from tree to tree 30 feet above ground with much noise of crashing.

December 22, 1956 about 50 yds. S. of TB 10 one 30 ft. above ground in tree.

23 January 1956 In afternoon Merv Densing caught one by tail near SM 2 and brought in to photograph. Apparent ♀. Sleeps rolled up with foregut head tucked out of sight under body. Alarmed sometimes stands with hind feet far apart, propped by tail, forelegs spread wide, as if ready to embrace.

24 January 1956 Densing photobed in movies & I in stills the anteater. Placed on bare vine it ascended slowly to top. Later came crashing down, & I put in cage to hold for examination. Can be carried by tips of tail, shakes down when tries to climb up to hand.

1/ In afternoon I saw one at AVA $\frac{10}{2}$. It ascended 15' tall palm rapidly, then remained very quiet at top. I tried 35 mm. color photos in top. Kept in cage.

26 January 1957 Nearly dead in cage (perhaps was in sun), & died by noon. Made skin & skeleton.



C. Koford
1957

11

Marikinia goeffroyi

January 4, 1957

Barro Colorado Is., Canal Zone

Remington Kellogg reported seeing 2 near TB 7, & possibly a third (or fourth).
ms.

20 April 1957 Saw a pair in fruiting tree of Psychotria (see below) of seeing them in the highlands since 1948.

2 May 1957 Found one dead on road in Madden Forest, G.Z.

4 May 1957 In yard of house 5 m. Guanacaste, a mature tree with at least 3 at about 5 p.m. (reported by see Koford).



C. Koford
1956

Aotus trivirgatus griseimembra

December 27, 1956

Barro Colorado Is., G.Z.

About 8 p.m. heard crashing in Cecropia 100' N. of Kitchen & saw one in lower branches, apparently eating long flowers. It jumped from branch to branch quickly in moving away.



Caluromys derbianus

November 11, 1956

Barro Colorado Is., Canal Zone

Bocanegra found one near banana trees & brought it in in net. Very fierce acting. Always attacked rather than retreating. But in the hand weak. Cut off a right rear toe ^{8/11}
_{RR} & released in p.m. in fruit tree. It stayed 10 minutes. Then went to tip another branch & jumped 7 feet down to grassy ground. Ad. ♂, testes about 9 mm. diam. each in blue-gray sacs. Tail about 15"; distal half white. Weighed 285 gms. When grabbed gave repeated shrill squeak. In sack climbed up. Did not seem to seek dark retreat. Took photos in tree. December 26, 1956. Had long good look at one in lower branches of Cecropia just s. of Chapman House about 8 p.m. A Didelphis in tree at same time. Eyeshine of both yellowish white.

January 9, 1957. about 7 p.m. saw one (+ 2 Didelphis marsupialis) in banana tree s. of Chapman House. Climbed mainly up branches.

Jan. 12, 1957. in same place as above. Climbed up branches. No other animals seen.

Chironectes

August 21, 1956

B.C. Island, Canal Zone

8:30 p.m. at Lutty Stream on Don Donato Trail (Tin. D C 1) looking for frogs. One water possum swam toward me in 6" deep water to distance 3 yds, emerged so that I saw back markings clearly, & went back upstream. Enders⁽¹⁹³²⁾, thought not on B.C.I. Red eyeskin, bright.

Didelphis marsupialis ^{caucae} *strensis* O. A. Allen
Metachrops opassoum ?

August 1, 1956

Barro Colorado Is., Canal Zone

Last evening about 9 p.m. I saw one (apparently this) in branches of a Cecropia mexicana near A 2 M house. Red eye shine. Ran about branches easily, rarely using long tail around trunk. I set a live trap on fallen breadnut tree (fell about July 28) nearby, baiting with banana, & caught one this morning. Weighed 700 gms. & had at least 3 young, naked, about 40 mm. C-R length, in pouch. Blackish long hair w/ot pelage, grey short hair, brownish belly. Tail white distally & caudal. Renewed toe 5, FR (front right posterior). ^{lateral}

Released at fallen breadnut ^{just} tree 100' N.E. of 2 M house. A similar trap set evening but no catch by 8 a.m. Aug. 2. Evening Aug. 18 saw similar in big leafed Baccharis st. 10' of Chapman House. Red eye shine. on 4" diam. branch 20' up, beneath crown. Very long naked tail hung straight down, white distal 1/2 or t. In dark now not long appearing. appeared dark pelage above, light below.

November 4, 1956. Live traps set near log at 6 M 1 took one small ot. It had 3 small ticks tail. Weighed 235 gms. Clipped R F (†) toe. Released at 7 a.m.

November 25, 1956. Trapped ♀ weighing 1025 gms. on Lucy at Short Cut to Molino. Pouch empty. Outer R foretoe gone - the one marked Aug. 1 apparently. Tame compared to Caluromys.

December 3, 1956 + his is commonest carcass or road between Gamboa & Balboa, sometimes 3 in that distance.

December 26, 1956. Saw one in balsa s. of Chapman House in evening.

January 2, 1956 saw one in same balsa. In descending trunk it met according larger one. Red eyeshine.

January 12, 1956 saw one with 3 in a log in big palm s. of Chapman House. Hair 1/2" to 1" in length.

Didelphis marsupialis

17 March 1957

Barro Colorado, Canal Zone

Ann Mc Balents took one in live trap at Fuentes House.
It was a ♀ weighing 1250 gms. including several
young in pouch. One young weighed 9 gms. & had total
length of 108 mm. Hairless yet. Easily pulled from nipple.

Bradypus griseus

July 10, 1956.

B.C. Island, Canal Zone
Cugene Esenmann called my attention to one in top of
tall Bombacopsis 50 yards E. of Old Lab. Wilmar
said it was there about a week ago.

July 12, 1956. About 6 pm one dropped out of Cecropia
tree 100' W. of Kitchen. Wilmar thought it was one
he had photod in captivity & released about 6 weeks
ago. He thought it originally from BC Island. I cut off
posterior right foot toe (of 3), + painted left side of
body white (cervical). Bocanegra hung it back in same
tree. When held + arm pulled, sloth pulled down back
against forearm + brought foot forward as if to scratch.

July 18, 1956. About 6 p.m. same one seen near
top of smaller Cecropia 100' NE of first. Paint + many claw
visible. It hung by hind feet + scratched at back with alt.
ernate strokes of foreclaws, keeping them up for several
minutes at least. At 7:20 p.m. I thought it was on a branch
in top of same tree. Hauler monkeys 50 yds. from it, moving
in trees but not calling.

July 19, 1956. Sloth gone from these two trees.

July 31, 1956. Painted sloth said to have been seen in Cecropia 100' N. Kitchen
yesterday, + another in Cecropia 100' NW of Kodak House.

August 1, 1956. Saw the one near Kodak House about 6 p.m., + again
about 8 p.m. Red eye shine, but small dull eyes. Responded to whistle
by turning head. Much green alga on this one. At 8 a.m.,^{Aug. 2} in same tree,
10' distant, hanging by one arm or foot.

Aug. 7, 1956 C. Whittenberger saw adult + small baby at
Barbara Lothrop's 1.7 about Aug. 5. Wilmar had baby from Panama; end third.



Bradypus griseus

August ~~14~~¹¹, 1956 BC Island, C.Z.

One in Cecropia over A 2 or down all day, at catch,
not moving. Fair fur now on. This marked July 12.

August 12, 1956. One, large, in 50' tall spindly compound
leaved tree 100' NNW of N Weather Rev Ldg, near tip branch in
well-leaved tree. Afternoon of Aug. 14 still there, within 10' apd.

August 14, 1956. One in spindly Cecropia 100' NNW of Kitchen at
noon, evening, & in morning Aug 15. apparently not feeding or active.
Much rain afternoon of Aug. 14.

August 22, 1956. One reported in cane tree.

August September 1, 1956. None seen this tree or
vicinity today or Sept. 2.

September 4, 1956 Same one in tree (Cecropia, same ^{tree} as July 12).

October 2, 1956 None seen near clearing for past 2 weeks
or more. None reported or seen by October 23.

November 6, 1956 In heavy rain ^{wr} at NWW 3 saw one climbing 4'
diam. vertical tree, only 5 feet up. Possibly the marked one.

December 22, 1956. At TB 8 1/2 at edge clearing to S. of oil,
one at catch of tree, 30 ft. above ground. Dark developed back
& white patch on back. Moved head rough in exposure to
whistle. Still there ^{am} 2 hours later (11:30). No Cecropia seen
near, but fig prominent.

December 26, 1956. One in late afternoon on ground near
1952 Bldg. It finally hung in lime tree near kitchen.

Took it down & broke off inner foreclaw of left forefoot
L 114 111R. Weighed 7 lbs. No patch on back. 10⁺ moths seen
on fur & a few collected. A large tick also taken from
wrist. We explored in Cecropia near kitchen.



C Koford
1956

3

Bradypus grisous

December 27, 1956

Barro Colorado Is., Coral Zone

About 10 a.m. one in apparent Bombyx 200 yds. NNW of 1952 Bldg. Stayed in upper branches at least an hour, apparently feeding. Had white mark with medial black stripe on back. Seen by Mr. & Mrs. Stappanbeck, who showed it to me.

January 9, 1957. At summit gardens one in cage. It came 10' across ceiling wire when we arrived. It reached out one arm + put claw in fur of back of a marmoset. Patch on back indicated ♂.

January 10, 1957. Same in cage + was noted in top of L. Bombyx cage 10' E of the same tree. No sign of any soap bubbles but few leaves yet.

January 11, 1957. Same in cage of Bombyx, with soap bubbles no leaves near the tree. Same or even more than last day?

January 1957 One in top of near bare Bombyx 400 yds. NNW of 1952 Bldg. at 8:30 a.m. + 1 p.m.

JAN 26 1957 One low among large shrubs to N of ZMA House, according to Don Densinger. B.C.I.

6 April 1957 ~~at 10:30 a.m. and 1 p.m.~~
~~at 11:15 a.m. + 1:30 p.m.~~

17 April 1957 I saw one crawling on branch 15' above stream near The Water Hole near Summit, C.Z.



C. Koford
1956

Choloepus hoffmanni

December 12, 1956

Barro Colorado Is., Canal Zone

at fork of Betah trail off AIA saw one hanging side on branch of Phyllis dendron growing 20' up side of 1 ft. diam. tree. Did not respond to calls, whistle, or beating on side trunk but sought a sleep, not dead. (Not there next morning).

December 26, 1956. Warren Saast saw one he took to be this near WMW 15.

November 1, 1956. I found one dead on road half mile toward Laembooa from entrance to Summit Gardens. ♂.

19 Saturday January 1957 Heard that Boanega found one near S. side clearing nr. Chapman House. || Apparently one nesting high in tree near 523.

15 April 1957 Paul Johnson gave me one unim. He captured near Palo Seco about 1 month ago. Kept in cage since. It was clean but scrawny. After 1/2 day without food I weighed it - 1600 gms. I clipped inner right hind toenail XII and released near Chapman House. I took photos. It climbed about 1 1/2 feet up 1 1/2" galvanized iron pipe before slipping back down. Hind claws clung tightly, forefeet & claws weak compared to Brady-
pus.

20 May 1957 One hanging in tree 25 feet above trail near AIA C at 11 a.m.; judged to be not Bradypus.

Choloepus hoffmanni.

November 1, 1956

Found one dead one road a bit into toward bank
with stone entrance. To left, another which



Tamandua - solstitialis

1 February 1957

Barro Colorado Is., C. Z.

Saw one about 4 p.m. in tree at WNW 11. Paid no apparent att. to people + 15' below + 30' distant. seemed to be moving or licking small insects (ants?) from branches.

12 February 1957 In afternoon while I was down close range near SNI.

26 February 1957 I saw one ascend vine near WNW 3. Posterior nipples enlarged, probable ♀.

4 March 1957 Found one & saw another, a 1.5' tall, young on the seaward side of Bothe Lagoon. It appeared to be in good health. A man ago a visitor told me he saw one on this island. Did he say just it alone, or did it cross 50 yds. of water to reach the island?

27 March 1957. I saw one climbing 2" diam. tree near AVA 12. David Sonneborn saw one near WNW 9 1/2.
30 March 1957 Found one 1.5' tall, about 2.5" in diameter; was covered with hair.

5 April 1957 One seen on road to station.

3 May 1957 I saw one climbing tree at BL 1. One of eight found injured or missing. Rather small size.

7 May 1957 Saw one about 100 yds. E. of Big Tree near SVT 5.

1 June 1957 I saw one ^{tree} ascend ~~tree~~ at SW NW 9 about 9:30 a.m.

C. Koford
1956

Dasyprocta nosemannii

September 15, 1956

Barro Colorado Island, Pan.

About 10 a.m. saw one near Dale Creek at start of Lathrop Trail. Nosing into dense brush leaves, very bushy, no smell noted.

August 8, 1956. Notes of Carl Rettmeyer. Three young about 50 mds E. of JVT 2.8 at 8 p.m. About half length of adult size. At 11:30 p.m. one adult about 50 mds N. of #JVT Big Tree.

October 27, 1956 at Donato 2 1/2 a large dead one in trail, little meat left, smelling badly.

22 January 1957 In evening about 5:30 p.m. one dug under a drying pile of loose grass near E. end of Test Table Bldg. When alarmed it suddenly dashed out & down the slope toward creek.

24 January 1957 Merle Densinger saw one near 5M 1 or 2 and tried to catch by tail.

~~1951 8 ♀ NTF JAN 26 1957~~ Early in night W.C. Lundy saw one near AVA 5 1/2.

31 January 1957 Saw one near AVA 8, one near Test Table Bldg. & (same?) later near 1952 Lab. Both under loose vegetation with nose. Can run very fast in alarm.

21 March 1957 P.G. Hawes found one, fairly fresh but eaten except for shell & one foot, on Armour trail.

28 May 1957 See found dead one on trail near TB 1.

Proechimys *semispinosus*
spinosus

Rat - 450 gms - brown above, white below,
♀ 1808

July 19, 1956

Trapped ^{1807 CBK.} at about 3 p.m. & ^{1808 CBK.} of same trap 10 p.m. at mouth of Lutz Stream. ♂ with plug of semen in penis. ♀ apparently lactating. Taken in Schaeffer trap, banana bait. ♀ had inguinal pair nipples plus 2 on each side between legs, high on side in area of brown color. Stomach contents pale green & white, mushy; frog meat small.

October 22, 1956. Dr. Robert Enders wrote that he was interested in how many lost tails between marking & recapture.

#2 October 23, 1956. Trapped on by 2:30 a.m. (Oct. 24) in forest about 75 yds. SE of Chapman House. Held till noon Oct. 24. Marked "1" $\frac{1}{2}$ " F by toe clips, #2, #1 toe too small to clip. Had 5± fleas, 20± mites. Roamed a few minutes in 70% R.O.H. Released at site capture. Released, stayed at spot for 4½ minutes, then away with high bounds & into grass. Tail intact. No disfigurements except split l. ear pinna. Ate bread in cage. Easily handled in cloth sack. Can push & scratch hard with hind foot. Wt. 488 gms. ♂, testes abd. Penis & anal region & scrotum not dark pigmented. In sack made soft crying sounds. (this sp.?)

August 16, 1956 Carl Rettemeyer notes. One, at 6:30 p.m. in hollow log at Donato 3.5. 14" diam., open end on trail. Same place 11:30 p.m. apparent adult.

January 12, 1957. About midnight appeared in large tree ⁱⁿ near E.M.I. at side road - cap racing - no food - went down tree under log earlier. This one probably is agouti since found in

Frederickia *semispinosus*

January 13, 1957

Barro Colorado Is. Canal Zone.

Handed & left tail at 50%. I caught it at 70% and measured about the tail. The animal had testis about 30 mm. Tail 195. Hind foot 52 (earliest I have). I went to rest camp in early evening, returned at 7 pm and it was gone.

31 January 1957 ♂ same night of 24 January a ♂ taken by Bocanegra, without a tail.

This I killed this evening; a large ♂.

Facts. ♂
5001 I trapped one 50 yds. S. of Chapman House in live trap with corn bait. It had torn off right hind foot, thus $\frac{1}{2}$. I clamped on stub shorter. Tail 170 long. Weight $309\frac{1}{2}$ gms. Had fleas, lice, chiggers, & mites; saw a few. Testis about 30 mm. long by palpation. Released, it walked slowly away, tail held about horizontally. I had picked it from cage with bare hand. A sneeze from my wife caused it to struggle much. Later it struggled & scratched when I accidentally struck its nose. Claws sharp. It seemed tolerate plucking of ectoparasites from nose, ears, & eyelids.

2 May 1957 Inside Chilibilli Caves, perhaps in dark tunnel, I saw a large one crushed on floor.

C. Koford

1

Mus musculus

12 January 1957

Barro Colorado ls., C. Z.

Caught one in 1924 Bldg. ♀, wag. unif. 144-66-21-13,
13 gms.

C. Kotford

1

Rattus rattus ?
~~R. rattus~~

♀ 1803

July 19, 1955

Barro Colorado 15., Analcine

Took 2 in Schreyer traps in 2d. lab in evening. Banana bait. Put up as slide ♀ 1803. Ipsar. imm. ♂ then similar, discarded (405 - 220 - 59 - 22 mm. wt. worn 30 x 3, gray). August 1, 1956. Saw one in Bureau drawer in Old Lab. apparently used old paper as nest.

C. Koford

Sigmodon hispidus

November 14, 1956.

Barro Colorado Is., Canal Zone

In $\frac{1}{10}$ traps set in tall grass at Plantation Pt. Took
one ♀ (lost 1 trap). 1838 in BKE catalog. Specimen mine.

C. Koford
1956

1

Dasyprocta punctata

July 27, 1956

Barro Colorado Is., C.Z.

Carl Rettemeyer notes two at DC 3.5, one 20 meters each side trail, 10:00 a.m.

July 29, 1956 Carl Rettemeyer notes. Two young, $\frac{1}{3}$ to $\frac{1}{2}$ length mother, possibly nursing. Thru 200 meters east of JVT 6. Head & posterior abdomen of adult. 10:30 a.m.

December 22, 1956. about 4 p.m. saw one at FEL 4. It alarumed approach to 30 ft. before taking flight. In last 2 months I have seen one ♀ about .4 times near 5M $\frac{1}{2}$ to 2, and on Nov. 28 saw one near Wheeler 15 (or short cut to AVA).

20 November 1956 About 9:15 a.m. saw one near Lutz 4. also saw one here in evening about Jan. 3.

16 January 1956. At AVA 8 $\frac{1}{2}$ near Big Trees saw one on ground, then sitting up on hindlegs, forefeet well off ground, atop a log. It fled calling loudly.

13 February 1957 I saw one on trail near WMA 14 about 10 a.m.

C. Koford
1956

Cuniculus paca

July 27, 1956

Barro Colorado Is., Canal Zone

Carl Rettenmeyer said me that last night he found one fully killed, shade broken, on trail at junction of San Ignacio and Barbour. Full grown. Trapping cat killed.
(TTB 10)

August 8, 1956. Carl Rettenmeyer notes. Adult at DC 3 under crown fallen tree at 11:45 p.m.

November 20, 1956. Saw one shot to death about 9:15 a.m. Back ears prominent. Walked quickly uphill.

16 January 1956. Near Big Tree no. A 04 8 1/2 saw one ~~sitting~~ ^{sitting} east on hind legs atop a log. In flight it fled, rolling houndsly.

11 January 1957. Three roadsters caught on B.C.I. had apparently taken some paras.



Sciurus ornatus

10 January 1957

Barro Colorado Is., C.Z.

I saw one at JST 2 on 'Butterfly' - fairly common, seen near SM1, near TB10, or TB28, or on A/A before Big Trees.

26 January 1957 I saw one near trail at TB 10.

1 February 1957 about 11:00 a.m. I saw one in forest about C.A. 4.

C. Koford
1956

Potos flavus
Kinbajan

B C Island, Canal Zone

July 11, 1956. Wilmer said he sometimes saw one in Acacia or breadnut tree near ^{A Z M House} ~~old Chapman House~~ at night. Otos seen some trees at times. Yesterday Eugene Cescinman said he also saw one or more Kinbagans near clearing. Wilmer says about 10 days ago he saw adult with 2 small young near ZMA house. He said in April he saw ♀ & small young from Panama.

December 23, 1956 Saw one in balsa tree just S. of Chapman House. Bright near-white eyeshine. Furred long tail.

January 3, 1957. ^{1957.} In balsa S. of Chapman House I saw one at 9:30 p.m., 20' up in tree. White eyeshine. Didelphis in same tree earlier.

January 4, 1957 I saw one in balsa S. of Chapman House 9:45 p.m., 30' up.

January 12, 1957. One in same balsa about 8 p.m. In spite of light went from flower to flower & flowers put head in. A companion said he heard sucking noise at this time. Eyeshine mostly bright white. Didelphis in tree at same time. Jumps from branch to trunk, about 4 ft.

15 January 1957. Again saw in balsa by Chapman House. Also in tree 2 Didelphis + 1 Calomys. Potos seems to pay no attention to flashlight beam - goes flower to flower & puts head in.

31 January 1957. As usual one with white abdomen in balsa S. of Chapman House about 8 p.m. Two in almond N.E. of Kitchen, one hung by hind feet & ate using forepaws. Eyeshine red in some, white in others.

Eira barbara

August 29, 1956

Barro Colorado Is., G.T.

About 3 p.m. I saw one ~~near~~ on bottom of tree near strangler fig 10 yds. S. trail at SM 4. No alarm at 30 yds. It soon walked away. One (perhaps this species) with white eyeshine near BL 1 about 9 p.m. last night, 50' up in tree over trail.

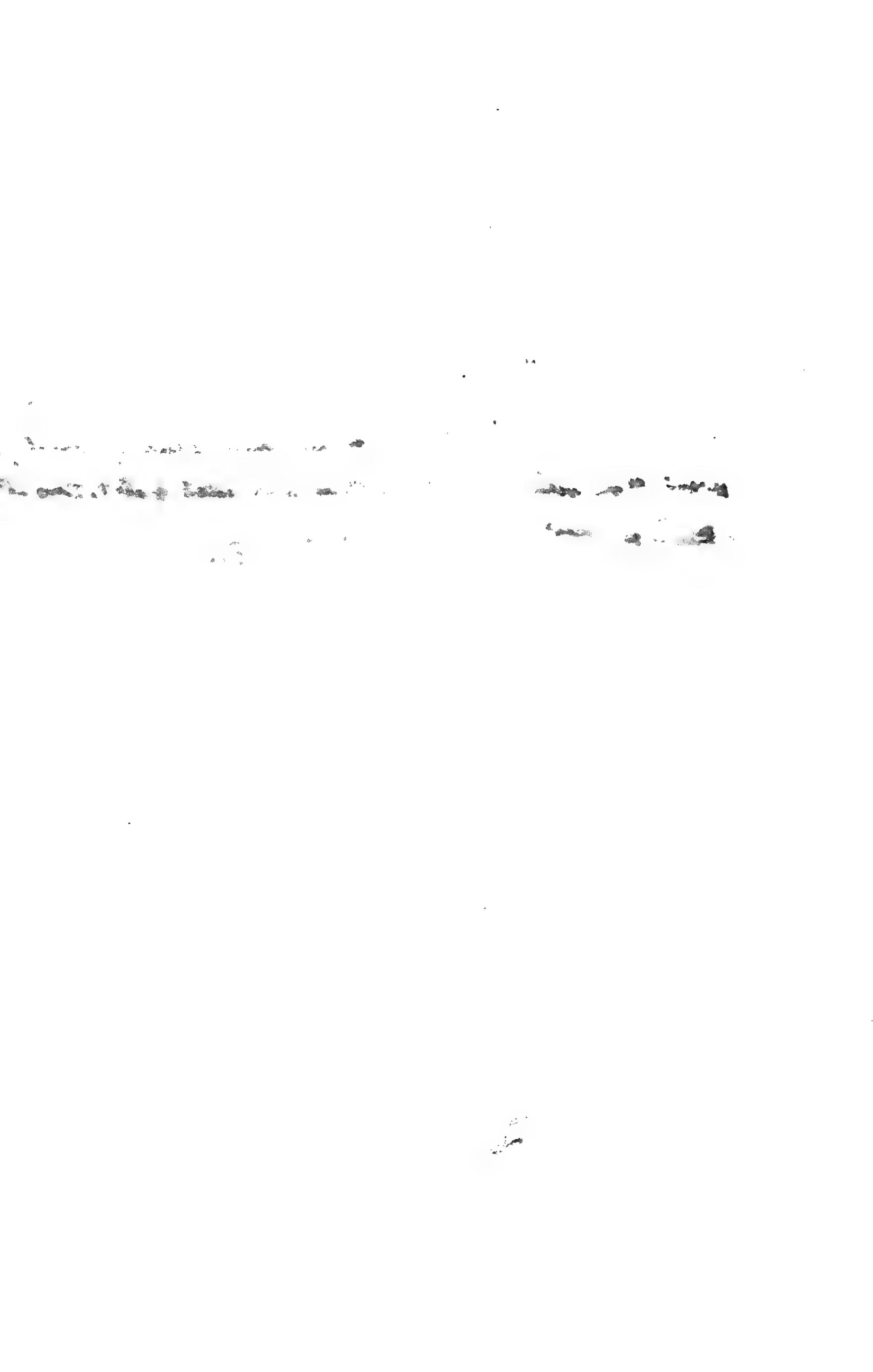
December 26, 1956. Warren Earst saw one near SM not far (SM 4?) from laboratory area.

1 February 1957 a scatmaster reported seeing one between AIA and JZ near art trail from JZ 21.

3 February 1957 Bruce Howell is bird watching and photographing two ~~and~~ ~~about~~ about 5 ft above ground from the tower.

near start of FM Teparan trail. One fallen on branch, & the two seemed to play. High up, perhaps 80 ft.

28 May 1957. I saw one near UMW II working near head of column of army ants.



Lutra annectens

December 9, 1956

Barro Colorado Is. Canal Zone

Joe Musseric reported seeing a large one swimming away from dock in morning.

December 16, 1956. About noon Joe Musseric saw one swim to small rocks at Colorado Point and there eat a fish about 5" long. He thought it smaller than the one seen December 9.

January 10, 1957. On wooden dock at Brayton House, 2 piles of Yucapa fish scales found here, perhaps placed by otter.

3 April 1957 Found a pile of fish scales on a wooden dock near entrance to canal at Brayton House.

27 April 1957 George Lee saw one near Rio New Plantation.

4 May 1957 Pile of fish scales indicated feeding on side of Slothia Ls.

Pecari
Tayassu tajacu
Pecari collared Peccary

July 13, 1956

BCI, Canal Zone

CW Rettemeyer of Kansas Univ. told me there is trail on w. side of Wheeler trail at 3 mark. Another man Miller trail, crossing shortcut to Barbour Lathrop.

July 17, 1956. Two tame ones to lawn near Butcher (+ coati too). ~~Boa constrictor~~ ^{of the} says one taken by him as young last September.

October 16, 1956 Near Fairchild 12 found an imm. dead, ^{dead} hole in side, rotting. Attention called by one Cathartes on ground, and stench.

July 29, 1956 Carl Rettemeyer note. Three at DC 4.3. Tracks + odor TB 8.1.

August 9, 1956 ~~3000~~ Carl Rettemeyer note. 3 or 4 near DC ~~4.3~~ ~~4.7~~ 3, ^{6:10 p.m.} ~~went toward~~ DC 4.3-4.7, at 6:10 p.m. 6:15 p.m., 6 down hill to NE; some smaller than others. DC 3.5 one went down hill 6:15 p.m. (ad. with white patch center left side).

October 27, 1956. Along TB smelled peccary + saw tracks. From base of large tree with strangler figs near TB 5 (?) two ran across trail + away, 25 yds. ahead of gp. people. Soft dark amorphous droppings and much paved ground on trail near site.

16 April 1957 Near Donato + I saw 3 adults with three small young (brown). They snorted + dashed back + fled across the trail 3 times in 2 min. Young followed adults, singly. Young sometimes froze. Apparently eating orange flesh of black palm fruit.

21 March 1957 P.G. Hooper saw 2 at AVA 5, large.

C.Koford
1956

Odocoileus virginianus

July 18, 1956

B.C.I., Canal Zone

A fat one, no antlers, grey coat, tame, near Kitchen in morning.

Aug. 7, 1956 Carl Rettemeyer saw ♀ at Tom Harbour 13.

October 21, 1956. Tame one seen near Kitchen.

August 10, 1956 Carl Rettemeyer notes, DEST 85.4
one doe 8:30 p.m.

November 1956. The tame doe seen about once a week.
near kitchen, boat landing, or other buildings. It has no tail.
January 3, 1957. Fausto Bozanegra says there are only one
on B.C.I. He says mayamas near Fuerter House.



Chiroptera

July 12, 1956

Barro Colorado Is., Canal Zone
(1805 CBK - in alcohol)

I Carl W Rittermeyer found baby bat a few days ago near New Lab. I preserved it in formalin. July 7 we found one hatched at Frigidaire landing; not saved. Rittermeyer says between Lake & Wheeler trails on way to Tandem he saw low hole near tree roots & bats going in & out. On July 18 he visited site but saw no bats. 1805 CBK

July 25, 1956 Carl Rittermeyer found baby bat in Chapman house. Saved in alcohol (1809).

August 15, 1956. About 500 yds NE of Old Lab, a dead tree (Guayacán?) about 30' tall, & bats coming out about 20' up in evening. Long winged & shimmered water. I think they are *Dermanura noctilio*. Saw also one of Sept. 1.

August 18, 1956 On bank of the big stream in Van Tyne trail about 35 m. w. in a m. high 20 ft. up bank, resting, 2000 and night birds.

August 22, 1956. Went to same site as last. 2 fresh pictures of eggs of this bird.

Sept. 11, 1956. 1/4 grown young found in boat.

October 1, 1956 "at Pedder's Settlement near Madidi Wye, they were abounding all the time around iron roofed concrete houses there. They were large = *Artibeus jamaicensis* P. gallopinus. Length c. 170 mm at 7 m. C. was about 1/2 grown. The men would always keep the bats away from a nest of theirs but had sent them away, returned again.

October 31, 1956 as usual, half dozen on SSE side of old Zetek office on wall under eaves near wasp nests.

Banded Nov. 12

M. nigri.	♂	517	-	Haskins Bl.
	♂	518	"	
	♂	519		Bonanza H.
	♂	520		Chidi H.

S. monachus

Chiroptera

November 3, 1956.

Barro Colorado Is., C. Z.

At east side Donato's dead tree ^{near 3} held up by large vines. When struck fog two small bats flew out of hollow, 3' above ground. In daylight 6 to 7 a.m. small & med-sized bats over 5 M near 1 and 2 mades, flying back & forth. November 13, 1956. In evening went to dead tall tree in water 150 yds. NE of Plantation Point. First bats left tree 5:58 p.m. There were very small & flew very fast down & away. In all about 30 small ones came out of 3 holes in trunk. About 6:05 first large bat out, & about 5 in all; possibly Noctilio. All out by 6:10 p.m. apparently.

November 20, 1956. Put up mist net across Bl trail about $\frac{1}{2}$. About 8 p.m. removed a large Artibeus and a small phyllostomid with facial stripes. None in net 10 p.m. at 2:30 a.m. ^{of the} 2 small kind. At 6 a.m. one small bird, rather gray. Holes in net indicate some escapes. Probably best to sleep near net and tend it all night.

November 22²², 1956. A net near Kitchen took a Malacorhinus (coih-
ensis) [?] about 7:30 a.m. Net near W. end New Lab took a Chiroderma? about 8 p.m. Kitchen net took Centurio about 8 p.m.; nothing else by noon.

November 28, 1956. Put up net on s. side Chapman House parallel to edge of clearing. During night took 2 Artibeus lituratus (two subjects released) and 3 Chiropedetes? Clear evening, then rain; 2 C. and one art. got in net after 10 p.m.

December 2, 1956

Chilibre, Panamá

Visited Chilibre Cove, which have opening about 200 yds. from road to Cabor. Still intact with hundreds of bats hanging on ceiling of limestone cave about 30 ft. high in parts. Cluster



Chiroptera

2 December 1956

Chilibre, Panamá.

of 100+ *Carollia* and 30+ *Phyllostomus* on ceiling. Took a *Diclidopteryx* near one entrance. Limited only one large room + passenger to it; doubtless many more passengers present. Visited Mrs. Barrett 3 mi. SE of Gamboa + saw 20+ *Diclidopteryx* on screens under eaves. Took 3, all ♀♀.

4 December 1956. Took one in net, banded, + released. Prob. *Uroderma* (yellow ears) but perhaps *Vampyrops* (upper middle incisor very long).

5 December 1956. Had 3 nets out, 2 in room shape. Took an *Artibeus watanabei* about 7 p.m., 2 *art. lit. palmarum* about 9:30 in same (Lily Trail). *Artibeus lituratus* nr. Chapman House 8 p.m. In pumphouse a *Dermanura* at 7:50 p.m. a *Chiaderma* at 10 p.m. (specimens).

23 December 1956. Went to hunting boxes at Orchid Island. Only 5 left, these on orchid. at least 2 gone from there + all from De Lessups. Bats in same one as before - big eared type with bold crown. I took all ♀. These were clustered together at one point on ceiling.

27 December 1956

Frijoles, Canal Zone

Entered attic of wooden train station covered by corrugated iron + roof. Saw about 5 *Molossus* (*cubensis*?) hanging low near corners, + heard *Molossus* in roof. Several dead *M.* and about 20 dead (old, mummies) larger molossids on floor of attic. Saved skulls for identification. Droppings appeared to be old.

3 January 1957 an old mist net placed across 5M over 1 and tank clearing took 2 betw 2 *Artibeus lituratus*, 7 *artibius*

Chiroptera - Gen'l

January 3, 1957

Barro Colorado Is., Canal Zone

jamaicensis, 5 Vampyressa maja, 1 Uroderma bilobatum, and 1 Artibeus watsoni between 7 and 9 p.m. Net near Alice Cr. House took 1 Myotis nigricans, 1 Molossus coibensis, & by morning 1 Uroderma bilobatum. Old net near Chapman House at edge clearing took 1 Artibeus watsoni in morning. Most large bats came into first net when one held and squashed much - a regular rain of bats, many escaping net after hitting it or becoming only slightly entangled. New net set Jan. 2 eve near New Lab took 2 Carollia perspicillata (^{marked} ~~had~~ released), & in a.m. took all Carollia castanea (CBK specimen). All law over grass & Piper near shrubs.

January 12, 1957. Took a new net casting from 15 ft big tree for examination. Found some dried out bats.

January 12, 1957. McFarlane took 3 Hesperoptenus + 3 Micro-
nycteris from tree house. Heard + observed a few. Saw 2 others. Night at Natales? Found net at 5:45 a.m. 15:30 p.m.

24 January 1957 Took a small nylon hand net out in
in clearing near 1952 Lab.

13 February Took a Carollia & a Glossophaga? during night in net near edge clearing near 1952 Lab. Two other large nets yielded nothing. Netting much less productive in clearing than in October and November.

31 March 1957 Spent 2 hours in lab at 6 a.m. big net
in clearing & had no catching. In morning a coenophylla
fulviventer too.

5 April 1957 Visited Fort San Lorenzo & took 2 species of
flea bats in old chambers, & many bats (3 sp.) in sea
cave under fort. With David Hornabrook.



Koford
1957

5

Chiroptera - General

17 April 1957

2 mi. N. Summit, Canal Zone

Mr. Bouche showed me an old mine tunnel at Sardonillo Mine, reached by 1½ mi. hike from Gaillard Highway. More than 1000 bats in cave. Mostly Carollia (bats with juvs.), many Lonchophylla (with juvs.), and a few Dermanura Chilonycteris.

9 February 1957

Portobelo, Panamá

Sue & I went with Col. Hodell in army LCM. In room of old fort I saw about 6 bats & captured 2. About 10 escaped from coco palm, from foliage. About 6 small leg-nored (= Micromyotis?) seen in small arm of cave in highest part of an old fort on hill.

Gambao, C.Z.

1 May 1957 Investigated 10' diam. pipe tunnels 200' + 300' long at Core Drilling warehouse of Dredging Division (near golf course). Found 100+ Carollia and many Glossophaga in these tunnels. Myotis nigricans in warehouse bldg.

2 May 1957 With Charles Hanley visited Chilibello Cave on Chiliblo, Panama. Found thousands of Carollia perspicillata, 500 ~~not~~ Phyllostomus hastatus, 300 Pteronotus, 300 Glossophaga soricina, several Lonchophylla, several Dermodus, and a few Saccopteryx bilineata.

1 June 1957

Barro Colorado Is., Canal Zone

Dr. Sally Hugger-Schrader told me that today she saw a snake swallow a bat. As she passed a termite nest near 526, a coiled up snake fell out of a termite nest next to the trail. The snake was about 5 feet long, dark above, light below (Chironius?). Snake was coiled around a bat. Eventually (she watched 15 min.) snake swallowed bat down. She saw another bat go out and in same hollow termite nest.



Artibeus jamaicensis & *lituratus*

October 30, 1956

November 2, 1956

♀ 1824 (A. lit. palm.)

Barro Colorado Is., Canal Zone

Took at 1827 in mist net set over Crops on house swing.

Same net took *Blomsgogga* ♀ (1826) by morning. Cons ofNov. 3-4 took *Artibeus jamaicensis*, 1830, ♀ 1831 in same
net in clearing edge clearing. May be git 8' above ground.On Nov. 2 took 3 about 6:45 within 5 min. after setting
up mist net at Snyder Molino 1. Took 1 by about 11 p.m.
when took down net because bats were using it. No other bands
taken here, but smaller bats were flying over now.

a.l.p.

One adult examined was ♀ with wings 3 wide x 4 high, fore-
arm 64 long, 27 gms. (after in cage 12 hrs.), forearm,
97-0-20-23 mm. 11 slipped toes from 7 others + re-
leaved them. Flight slow + heavy. One hung up in tropia
immediately. Marks:

LR	RR		Scars	
(III)	IV	♂	test. O	70 mm. forearm
+III		♂		62 mm.
II+I		♂		65 mm.
III+		♀		63 mm.
III+		♀	imm.	61 mm. vag. impert.
I+III		♀	imm.	64 mm.
+IV		♂	66	test. and.

A.l.p. A.l.p. ? A.l.p. A.l.p. ? A.l.p. ?

Imm. dark gray + naked head stripes; white chin band
stripes + brown. Sometimes chiro-chiro chiro when held
hard. II Discard ♂ testis 3 x 3, abd. abdominal; 87-0-17-21,
46 gms. (after in refriger. 1 hr.); dark gray back with obscure
facial stripes; forearm 62 mm.

November 10, 1956 Took during night, in mist net at
NE end of 1924 Bldg; three in net at SE side of Chapman House.



Artibeus lituratus palmarum
jamaicensis

November 10-11, 1956.

Barro Colorado Is., Canal Zone

Taken 8 p.m., 11 p.m., 2 p.m., & by 6 a.m. They chirp loud & repeatedly when held by neck for extraction. Probably smaller bats usually escape net. Kept these until afternoon of Nov. 11, then measured forearm, marked, released. Marks as follows:

^{LR}
11+11 1111 forearm 73 $\frac{1}{2}$ ♂ tibia protruding

111+1 68½ ♀ n.p. Y2 mm. long. 8 mm.

1111+ 64 ♀ Imm.

LR-top
1411 111+1 69 ♀ *fran...*

all flew to woods, among trees, & apparently landed in trees among branches. About 4 parasites found on wing membranes each (scavd).

November 12, 1956. Took two in nets near Chapman House; marked,
last eve
1 & released. dorsal-ant.
top

© Janum 68 LR4 RR5

♀ forearm 68. 1XIII 111IX
LR4 RR3

♂ " 74 $\frac{LR4}{XIII} \frac{RR3}{XI+II}$ Vag. open. Nuptiale σ , black tipped,
4 wide \times 3 $\frac{1}{2}$ long. // A costi balled & ate at least one in
nest net.

November 22, 1956 Took one in mist net nr. New Lab

~~753~~ about 10 p.m. Marked ^{LR4} ^{RR2} XIII XIII. Forearm 62. Prob. imm. Released.

November 28, 1956. Took ♀ ad., forearm 72, in mist net nr.
IP ↑ PP

X. 1. P. Chapman House 7 p.m. Toes clamped $\text{+ III} \times \text{III}$. about 8 p.m.,
♀, 71 mm. forearm, toe mark $\text{+ III}^{\text{LR}} \times \text{III}^{\text{RR}}$. Perhaps nibbled banana
hang near net. Also in net a Chiroderma (OT 1863).

November 29, 1956. One in net nr. Chapman House in a.m. ♀, forearm 73,
many small ectops. clinging to wing membranes; wt. 62. Marked ^{LRT} X_{III} ^{BR} +_{III}

December 5, 1956. Referred to ad. nr. Chapman House 7:50 p.m. Clipped toes X ^{LRT RR} III 11+". Test, about 5 mm. Forearm 72. Between 9 & 10 p.m.

121
45
—
76

Artibeus lituratus palmarum
and A. jamaicensis

December 5, 1956

Barro Colorado Is., C.Z.

two in net met on Duty Trail SE of Chapman House. One ♀, imm., dark gray, no face stripes, forearm 62; $\frac{LR}{III} \frac{RR}{III+1}$. One ♂, no scrotal tester, forearm 72, brown, four stripes; $\frac{LR}{III} \frac{RR}{III+2}$. At 6 a.m. on December 6, 1956, two in net on Duty, 1 near camphouse. One ♀, imm., forearm 69, released $\frac{II+II}{LR} \frac{XIII}{RR} 1$. ♂ imm. forearm 61, LR 3 RR 2; had 4± mites on wing membranes, 3 flies (2 kinds) in ventral fur); Dk. gray, poor facial stripes. A ♀, forearm 61, dk. gray, poor facial stripes, had adult appearing nipples + was saved as 1878eBK (= jamaicensis)

December 9, 1956. ♀, forearm 67, nipples small, well developed facial stripes, yellow tragus. Acted docile. Taken in net nr. Chapman House after 11:30 p.m. last evening. Marked LR 3 RR 3. Had 6± mites on wing membranes. wt. 76 gms. Released. Flew out in air when released.

December 10, 1956. One ad. ♀ with elongated swollen nipples in net betw. Chapman House & balsa tree in a.m. (♀ 1883). 1882 & 1884 apparently jamaicensis, being smaller.

December 11, 1956. about 10 p.m. took 2 in net nr. Chapman House. Ad. ♂, tan, facial stripes, tester half protruding, forearm 6 1/2; removed 1 fly + 4± mites; marked LR 3 RR 4.5 + released. Another at same time dark gray, poor face stripes, forearm 6 1/2, marked LR 3 RR 4 + released (= jamaicensis?). A Carallia in net same time, possibly calling in response distress calls Artibeus when in hand. Overcast evening + calm.

December 12, 1956 In morning removed an imm. ♂, forearm 6 1/2, from same net nr Chapman House. Marked LR 2 RR 1 and released (A Chiroderma also in net).

$\frac{II+I}{III+1} \frac{\uparrow}{III+1}$

C. Koford
1956

4

Artibeus lituratus palmarum
and A. jamaicensis

December 12, 1956.

Barro Colorado Island, C.Z.

L.B. Took ad. ♀ net SM1 at 7 p.m. Marked LR2 RR2. Forearm 71. Young brown. Vag. open. nipples turgid, 3x3 mm. wt. 82. At 8 p.m. took 5 more 2 or 3 into net while I was holding one, as if squashing others. Another taken 10 p.m.

♀ ^{A. jam.} forearm 61 mm. pelage LR2 RR3

♀ ^{A. j.} 60 " " RR3 [sic]

♂ ^{A. j.} 62 " " RR4

♂ ^{A. j.} 59 " " RR5

♀ ^{A. l.p.} 73 ad. LRI RR1 nipples 4x3, black tips.

♀ ^{A. l.p.} 71 ad. LRI RR2 nipples 4½x3 black tips.

Very early in breeding season apparently.

January 3, 1957. In first net set across SM trail near 1 near water tank clearing took 2 ^{A. l. p.} between 7 and 9 p.m.

♀, vag. pigmented, nipples tiny, 67 gms. forearm 69.

♂, scrot. slight pigm., testis 4, 55 gms. (pushed out & mass. externally), forearm 70. In same net took 7 Artib. lituratus, ^{A. jamaicensis} and several Vampyressa wagneri.

Net down & remains eaten by bat in it in early morning.

January 12, 1957. Took 3 about midnight - car 201 in first net. ♀ pregnant, wt. 46 gms., forearm 64. C-R 9 mm. R ov. enlarged, 3 mm. diam. Facial lines indistinct. Dull gray color. No hair upper maxilla, ~~but A. l. p. probably~~. First pregnant Artib. taken. 12th parasitic flies on pelage. 1st other ♀ pregnant, 10.5. C-R 13. R ov. 3½ mm. long with 1½ mm. white corpuscular part; fat; 98-0-17-22, 36 gms. forearm 64; nipples large & pigmented; nipples 3 mm. slightly swollen. nose [↑] & mouth open; skin liquid; red (blood color) conjugating membranes with deep in general; 3 flies + water. 1st another ♀, forearm - 62, had 30th flies

A. j.

1st another ♀, forearm - 62, had 30th flies

Artibeus fimbriatus

January 14, 1957

1400-1500 hrs. in. Zone
limits, 10' to 15' magenta & yellow big and small, a male
86-7-15-23 + 4 prob. 100 gms. Total fur dark brown,
caput blackish; upper wings pinkish, pinkish white
feathers in navel area & on legs; wings pinkish magenta,
inner webs of forewings & pinkish brown & pinkish.

3 February 1957 One ♀ taken in net last night. 65 gms

lit. after starved in captivity, forearm 72 mm.; vulva pigmented,
palm. nipples slightly pink; l. av. with pink corpus 4 mm. diam.;
R.Ov. yellow, $3\frac{1}{2} \times 2\frac{1}{2}$; uterus enlarged as if aborted; nipples
turgid \sim , $3\frac{1}{2}$ wide $\times \frac{3}{2}$ high. = lituratus palmatus.

Another, forearm $62\frac{1}{2}$, was at testis $8 \times 6\frac{1}{2}$. Starved,
weighed 40 gms.

31 March 1957 By 9 p.m. one taken in net the 7.

Forearm $64\frac{1}{2}$. Light brown fur. Tot. lev. 90. 60 gms. wt.
Oestopararter. Much lactal tissue but no milk in.

No emb. l. av. bloodshot. Nipples pigmented, 5 wide
 $\times 4$ high, flaccid, naked 3 mm. area around.

2 May 1957 With Charles Hardley visited at Madden Wye, C. Z.,
at the of concrete gasoline storage shed. Corrugated iron roof on
2x4 framing about 100 large bats (specimens 1949 to 1952,
CBK). Some pregnant, and a few non breeding but large, and some
males present.

C. Kotford
1957

Artibeus jamaicensis

January 3, 1957

Barro Colorado Is., C. Z.

Earlier notes on this esp. mixed with Artibeus lituratus palmarum.
Several came into mist net near SM 1 between 7 & 9 p.m. Evening

7.	♀ nips. min., wag. not pugn. forearm 58. 40 gms. ^{dark} F gray. ♂, scrot. not pugn.; testis abd. Forearm 61. Wt. 40 gms. Dk gray. ♂ extr. test. 5 mm. (not pugn.)	63	41	Brown
	♂ extr. test. 7 mm. long.	60	45 gms. brownish	
	♂ test. not extrusible.	62	45 gms. Gray.	
	♂ extr. test. 8 mm.; forearm 63;	63	45	Brown-gray
	♀ no pugn. nips. or wags.; nips min.;	62	41	Gray

January 15, 1957. Last 3 days 100% return.

32 individuals of Artibeus jamaicensis / lituratus
marked by toe clipping Nov. 2 to Dec. 12. No
returns. Possibly lethal.

C. Koford
1957

Artibeus cinereus watsoni

January 3, 1957

Barro Colorado Is., C. Z.

To now all taken mode specimen; data in catalog. Took 2 in night in mist nets. One ♀, starting repro. activity apparently (specimen 1897). Discarded ♂, grayish & prob. immature; measured 51-0-10-16, 14 gms., forearm 38. Testis 4½ by 3; no apparent sperm shown by cutting.

C. Koford
19567

Carollia perspicillata

January 2, 1957

Barro Colorado Island, C. Z.

Taken 2 by 8:30 p.m. in nets near W. end of New Lab. These bats must have been among shrubs & within 5 feet of ground. ♂, testis about 5 mm. long, forearm 44, marked by clipping L toe #1, $\hat{1}$ X. ♀, unim., forearm 43, clipped L toe #2.

25 January 1957 One taken in mist net near 1952 Lab. ♂, 15 gms., testis 6×4 mm., penis slightly pigmented. Not saved.

16 February 1957 Two taken in mist net near 1952 Lab. ♀, forearm $43\frac{1}{2}$, wt. 17 gms., vulva & anus mod. pigmented, nipples unpigmented and $\frac{1}{2}$ mm. long — ;, emb. C-R 8 mm.; ov. $1\frac{1}{2} \times 2$ mm.; 6 \pm hair-like worms on or in embryonic membrane; 12 \pm worms in abd. cavity, loose; many pimplas around anus and vulva, & when squeezed white grease oozes out in $\frac{1}{3}$ loops. Other ♀, forearm 43, 17 gms., vulg. & anus slight pigmented; nipples low — and not pigmented; no emb. but uterus enlarged & yellowish; 5 \pm hair-like worms in abd. cavity; 2 flies in fur. I sent abd. worms to Dr. M. Voge, UCLA.

31 March 1957 9 p.m., one in net at Bl O. No emb. but one yellow follicle in L. ovary. Vulva mod. pigment. Nipples pigmented but $\frac{1}{2}$ mm. long & wide only. Wt. 18 mm. Tot. length 63 mm. Forearm 42 mm.

5 April 1957 at Ft. San Lorenzo I found a group of 3 ♀♀ 1 ♂ in old oak tree at n. side of highest level. ♀♀ pregnant. One more escaped. all on branch. In Sea Cave at below cliffs at N.W. side, off foot there were

Carollia perspicillata

5 April 1957

Ft. San Lorenzo aralione

200 m. +. Went to a camp at about 200 m. above
 about 10° S' east of the 7° 10' camp. There
 is a square house in a wide valley in
 ceiling. Limestone? Mountain formation +
 some walls. Wet places, little water. (I found
 a Natator and 7st manatee in same cave).
 Some C.P. birds, so many singing at 9 AM.
 or 10. I captured 1 large juv., 1 ♀, 1 ad. & 1 ♂.

Juv. ♀ 9 yrs. - brown + white + black.

♀ 17 yrs. - brown + white + black - very
 long + wide, with spots; brown + white + black

Juv. ♀ 13 yrs. - brown + black + white + black + white.
 Ad. ♀ + t. juv., ♀. + ad. - up. 4 yrs. old, black +
 white + white. 10-12. C-R 31 mm. Brown + white
 + black + white.

Ad. ♀ 24 yrs. ♀. + ad. - up. 4 yrs. old, black +
 white + white. 10-12. C-R 31 mm. Brown + white +
 black + white.

Ad. ♀ 22 yrs., ♀. + ad. - up. 4 yrs. old, black +
 white + white. 10-12. C-R 31 mm. Brown + white +
 black + white; black + white.

Ad. ♀ 28 yrs., ♀. + ad. - up. 4 yrs. old, black +
 white + white. 10-12. C-R 31 mm. Brown + white +
 black + white.

Ad. ♀ 28 yrs., ♀. + ad. - up. 4 yrs. old, black +
 white + white. 10-12. C-R 31 mm. Black + white +
 black + white.

Juv. ♀ 19 yrs., ♀. + ad. - up. 4 yrs. old, black + white +
 black + white. But blood in nostrils + red spot E. eye
 + under mod. pigment.

Ad. ♀ 192 CBK - ad. + ad. C-R 29 black.

Carollia perspicillata

5 April 1957

Ft. San Lorenzo - 1 mi. N.

Imm. ♂ 10 gms., found at 10' above surface in large tree.

Imm. ♀ 18 gms., found at 14', test. 9x5. " "

Ad. ♂ 21 gms. Ad. ♀ 26, test. 9x6, scrotal.
Lip & chin bare.

Ad. ♂ 1926 138g - also 1926.

This is a new record for Panama.
 Previous records were made by the author in
Pará.

17 April 1957

2 mi. N. Summit, Canal Zone

Visited Sardinallo Mine with Mr. Bouche. Hike up creek & branch from The Water Hole, about 1½ mi. Old mine machinery from 1920±. Tunnel 100' deep, horizontal, slight curve. Ceiling 6-7 ft. above solid floor, but only 4-5 ft. above surface loose mud and water (strong smell H₂S). Hundreds of green sepois bears in water, + several large frogs (Leptodactylus pentadactylus). Rock walls rough. Starting 10' from entrance some Carollia hanging, + perhaps 500 in tunnel, mostly in clusters on ceiling. Some tiny young being carried by mothers, but ♂♂ or also present. Deep in cave a few Dinirar or reeling and about 300 Lonchophylla aurita (?). Many parasites flier on the bats (sent to Mrs. Thurman, nos. 5005 to 5007). Entrance of cave on hillside under 60' high canopy. I examined specimens bats but kept none. Info on exams:

♂ 19 gms. - fm. 42 - t. 9x6. Testes scrotal, skin naked;
 penis near black.

♂ 18½ - fm. 42 - t. 8x5, scrotal.

♂ 18½ - fm. 44 - t. 8x5

♂ 18 - fm. 45 - t. 7x5

} semi black but
 ft. slight pigment
 scrotum.

Koford
1957

f

Carollia perspicillata

17 April 1957

2 mi. N. Summit, Canal Zone

Fur color varies much, from rufous brown to dark chocolate brown.

♀ 19 $\frac{1}{2}$ gms., fm. 44. Lactating. Nip. 5w x 3h in naked area 10 mm. wide. Oozing milk. Uterus 10 mm. long (center to tip).

with 07 juv. attached; juv. 5 $\frac{1}{2}$ gms., fm. 26.

♀ 17 gms., fm. 41. Also lactating, nip 5w x 4h. Vag. mod. pigrn.

with 07 juv. 8 $\frac{1}{2}$ gms, forearm 36, attached.

♀ wt. 21 fm. 42; lactating easily. Nipples black, 3+3 mm. D, in naked area 10 mm. diam.; ut. 17 l. x 7 w.

♀ wt. 18 $\frac{1}{2}$, fm. 41. Nip. tiny < 1/2 mm., unpigmented.

Vag. mod. pigrn. 1 emb. C-R 12. Ut. 20 l x 5 wide (emptied).

or juv. - 7 $\frac{1}{2}$ gms., fm. 29 mm.; well furred, gray.

Smallest juv. fm. 26, wt. 5 $\frac{1}{2}$. Carried to fm. 36, wt. 8 $\frac{1}{2}$ gwt.

1 May 1957

Frank 22, G-2

In tunnel made of 10' diam. sheet paper, 200 ft. long, + another 300 or + ft. long, very, perhaps 300 total not including young carried by mother in flight. With Baromphaga solivaria (juv.). Examined many bats:

♀ ad. - nip. 3w x 4h, lactating; forearm 42, 20 $\frac{1}{2}$ gms.

♀ juv. hanging on above - fm. 39, 9 $\frac{1}{2}$ gms.

♀ ad. nip. 4x4, lact. - fm. 42, 18 $\frac{1}{2}$ gms.

♀ ad. nip. 2w x 3h, lact. (black tips) - fm. 44, 22 gms.
uterus not enlarged; vulva pigmented.

♀ ~~vulva~~ pigrn. - nip. 4x4, black, lact.; fm. 43-12 $\frac{1}{2}$ gms.

♀ ad. nip. 3x4, lact., black tips, flattened; fm. 43, 18 gms.

♀ juv., fm. 41, 10 gms.

C. Koford
1957

5

Carollia perspicillata

1 May 1957

Famoa, Fiji

♀ ad., nipp. 3x3, lact.; fmw. 40, 3♂ juvs.

♀ imm., fmw. 43, ♀ w/ fur, of 16 juvs.

♀ ad., nipp. 5x5, lact.; fmw. + 2, 19 juvs.

♂ juv., fmw. 34, 8 juvs.

♂ juv., fmw. 39, 10 juvs.

♂ juv., fmw. 32, 7 juvs.

♂ juv., fmw. 41, 12½ juvs.

♂ ad., fmw. 43, ♂, 8x5mm., 2♂ juvs.

♂ ad., test. 7x4, fmw. 41, 11 juvs.

♂ juv., fmw. 40, 10½ juvs.

♂ juv., fmw. 42, 14 juvs.

♂ juv., 36 fmw., wt. 9½.

♂ ad., test. 7x5, fmw. 41, wt. 12½, Immature.

Only 3♀ juvs. but 7♂♂! Many still carry juvs.
when juvs. fly from hanging, one bird foot sometimes
seems to catch before releasing. Said n perch.

2 May 1957 By far most common bat in ~~liliopods leaves~~, banana,
there being several thousand. Many exposed beans on cane floor, some
sprouting. Some carrying large young measure after flying. No
large solid groups seen.

C. Koford
1957

1

Chilonycteris rubiginosa fusca

April 17, 1957

2 mi. N. Summit, Canal Zone

Sardinallo Mine (Blaedel, Jour. Mamm. 36: 232). See Corallia perspicillata notes. Near posterior end horizontal old mine tunnel, clinging to rough roof. Specimens ♂1933, ♂1934 C&K. also Lachnobia aurita present. Discarded ♂, t. 4x2, 96-22-11-29, 23 gms. Many parasitic flies (vials 5008, 5009; to C. Thurman).

Glossophaga carolinensis

5 April 1957

For an occasional one

In 8x8' fairly intensive netting at 10 ft. above ground, for 1 hr. & captured 1. Found 100% of all 400 individuals to be young. The old individuals have a lot of white.

One juv. ♂ 10 yrs., 10.5 gms., with 1.5 mm.
Ovary. Egg w. size = 14.5, unfertilized.

Id. ♀ 10 yrs., lactating, with 1.5 mm.
Ovary.

Id. ♀ 10 yrs., 10.5 gms., lactating, 1.
She 1 1/2 hr., eng. w. with 1.5 mm. Ovary.
Intervaginal bld. was noted during lactation.

Id. ♀ 10 yrs., 10.5 gms., lactating, 1.
Ovary - 18. = ♀ 11 yrs. lact.

Id. ♂ 10 yrs., 10.5 gms., 3.5% fat, 1.5 mm.
Ovary. Testis = 11.1 mm. lact.

Individuals with ovaries were lactating
only those over 1.

1 May 1957 Many imm. in two horizontal metal pipes 10'
diam. tunnels at Core Drilling warehouse, but only about
1/10 of Carollia population. Data on captured:

♀ Imm. from 37, 10 gms.

♂ Imm. from 36, 10 gms., testis 2 mm.

♀ Imm. from 35, 7 1/2 gms.

♀ Imm. from 36, 9 gms.

♀ Imm. from 34, 7 gms.

Probably adults too active for capture, these taken
hanging overhead or sides of O tunnel.

2 May 1957

Chilibrito Caves, Panama

Fairly common scattered in caves near Carollia peruviana

C. Koford
1957

2

Glossophaga soricina

2 May 1957

Chiriquito Caves, Panama

and in low ceilinged part cave (where old loading elevator) it was most common bat. None seen carrying young though many appeared to be juveniles. About 300 seen in all.

C. Koford
1957

Lonchorina aurita

17 April 1957

2 mi. N. Summit, Canal Zone

About 300 in horizontal shaft tunnel of old tunnel, with ⁵⁰⁰ ~~1000~~ Carallia perspicie. (which see) and Dixius (few). Some freshly born young, ad. ♂♂ present. Discarded following:

♂ 2 2 gm., fw. 52, testes 4x3 (tiny)

Juvs.: ♂ 3 1/2 gm. fw. 18 - with umbilical cord attached.

♂ 4 1/2 gm. fw. 22 - with umb. ^(removed forewinging) cord + bloody placenta.

♂ 4 1/2 fw. 25 - no cord or placent. recent scars.

♂ 3 1/2 - 21 - with cord.

Kept ♂ and ♀ for specimens (cat. nos.).

These bats in deepest part 100' long tunnel, on ceiling, packed in solid mass. Disturbed, hung in similar mass of about 2'x5' on ceiling another part tunnel. Rose leaf especially prominent in young (large proportionately). Kept many parasitic flies (nos. 5004; to Ernesto Thurman, Univ. Md.).

Koford
1952

Cat. loc.

Not numbered,
but follows 10

under cut palm leaves (1151-1152)

Nov. 13 Summit Experimental Station, Canal Zone

1151 ♂ T. 5mm. Uroderma bilobatum 68-0-15-16 12 cm.

1152 ♂ T. 5 " " 68-0-15-17 16 cm.
skeleton

1153 ♂ T. 5 " " 68-0-15-18 15 cm.

Nov. 14 Juan Mina Station, Canal Zone

1154 ♀ non-br. Corollis perspicillatus 68-0-15-19 20 cm.

1155 ♂ T. 6mm. " " 68-0-14-19 20 cm.
hip. tiny

1156 ♀ ov. with 1 mm. foll. " 68-0-15-19 18 cm.

1157 ♂ T. 6 " " 68-0-14-19 19 cm.
1 erb. 50mm. (total l.)

1158 ♀ (35 CR) Phyllostomus hastatus 103-19-53-53 115 cm.

1159 ♂ T. 7mm. " " 140-20-76-34 140 cm.

1154-59 in hollow tree

1160 ♂ im. Molossus bonvaae? 103-40-9-17 15 cm.
parous

1161 ♀(hip. elong.) Diriades albiventer 89-18-17-81 15 cm.
hip. short but conspicuous

1162 ♀ ut. and ov. look ad. 85-17-18-81 17 cm.
hip, uterus;

1163 ♀ ovaries small 89-17-17-81 12 cm.
skeleton "

1164 ♀(slightly larger) 89-17-17-80 11 cm.
testis 6x4

1165 ♂ protruding to outside 93-21-18-82 32 cm.

1166 ♂ T. 4mm. 85-18-17-81 23 cm.

1160-66, also 1171, in attic 1167 shot over river

1167 ♂ T. 4 mm. Diriades 88-18-18-82 18 cm.
under leaves of

Nov. 15 1168-70 in vacant house 1172-73 coconut palm

1168 ♂ T. 5 mm. Corollis perspicillatus 68-0-14-20 19 cm.

1169 ♂ T. 6 " " 64-10-15-22 17 cm.

1170 ♂ T. 5 " " 60-10-15-21 17 cm.

1171 ♂ im. Molossus bonvaae? 104-30-11-18 13 cm.

1172 ♀ no emb. Uroderma bilobatum 68-0-12-18 20 cm.

1173 ♀ " " 68-0-15-18 21 cm.

-End trip-

Micronycteris microtis megalotis

January 12, 1957 Barn is ready to live. Tom, Ted David Pekarik & wife are caught 5 bats. Leucopteryx delicate, pinkish, about 10 cm. long, 2.5 gm. wings + 2.5 cm. tail. No. 18300, female, 2 young. Glossophaga, white, with a dark patch on each wing, a dark vent, with 2 young. Found 1 Leucopteryx specimen with a white abdominal patch, incidentally, 11.6 cm. long, 2.5 cm. wings + 2.5 cm. tail. Found 1 Glossophaga specimen with a white abdominal patch, incidentally, 11.6 cm. long, 2.5 cm. wings + 2.5 cm. tail.

16 January 1957. Two in empty tin box, about 16×18×20" size, on floor of Town House. Disturbed, hung from ridge ceiling. 3 Leucopteryx also in this house.

1 May 1957 about 10 am. I saw a colony of 5⁺ inside the house clinging to peak roof ceiling.

4 May 1957. Saw same again, same pt. of ceiling.

24 April 1957 I took two from hollow log near Pacora, Panama. Specimens ♀ 1935, ♀ 1939 CBK. One with 2 gm. juv. clinging on.

✓
6 m tall
long wings ✓

Molossus coibensis *

October 23, 1956

Barro Colorado Is., C.Z.

At 5:30 p.m. I strung a mist net 30' long & 6 ft. high over grass at E. side of New Lab. Bats heard in corrugated aluminum roof. At 6:05 first bat in net, then others. About 10 extracted by 6:35 p.m. I made skins of a ♂ & ♀ (1820, 1821 C.B.K.). wts. of 5♀♂
11-18½ gms. (2 were 12 gms.). wts. of ♂♂ 12 to 19 gms.,
4 being 18 or +. Two still alive 4 p.m. Oct. 24 tho were in
refrigerator all night (♂♂). The 13 bats taken by 8:30 p.m.
Last night. Net visited ~~at~~ 2:30 a.m. & 6 a.m. but no more bats.
Put up 3 of these. Mystis under corrugated aluminum roofing &
inside attic same building (New Lab).

December 23, 1956. I strung net near W. side of New
Lab & took several. One injured by another in dog & so
killed. Black back, forearm 35, ♀ with nipple slightly
pigmented & concentrically (1 mm. wide), 14 gms., measur-
ed 95-32-9-13; adult. Others brown & apparently
imm. Over 10 gms., forearm 33½. Banded ♀, forearm
34½, no. 58-81506. Another, forearm 34½, 58-81505.
--- 504, forearm 34. * 503, forearm 35. --- 502,
forearm 34. all ♀♀, banded L. wing, #1 band; nipples
tiny & not pigmented. Apparently from under corrugated
aluminum of roof.

January 3, 1957. One netted next to Allee Creek House in evening.
Examined, banded, released.

Myotis nigrans

November 6, 1956

Frijoles Canal Zone

Found one in crack of rafters in Frijoles boat landing bldg.

November 19, 1956. Saw one feeding under & near shed of boats, another hawking hanging on rafter, in mid afternoon. Rhinolophus was in same shed but hawk hung more open, while M. n. n. hung against rafter.



Myotis also likes corner between eave, 2x4 rafter, + wall on kitchen building, + sometimes on SE side of Horskins Bldg.; often on Kodak Bldg.

December 5, 1956. Banded a few from attic of 1952 Lab.

24-46524 ♀ nipp. slightly swollen

- 25 nipp. elongated but flat & flaccid
- 26 nipp. turgid and short.

~~27 or forearm 22~~ Also some or ~~or~~ including $\frac{5}{4}$ mm. atures (forearm about 21-30) banded some place. Forearm measurements 22, 22, 21, 24, 30 or ~~or~~ 24-46527 to 31 resp.

December 23, 1956. Netted & banded ♀, nipple slightly elongated, forearm $3\frac{1}{2}$; no. 24-46501; W. end of 1952 Lab.24 February 1957 Found naked young, 40 mm. total length, on ground near 1952 Lab, alive. Gamboa, Canal Zone1 May 1957 Saw 12+ on sides 2" x 10-10" rafters of corrugated iron roof, inside warehouse of Core Drilling section near golf club. Retreat under corrugations of iron. Knocked down with a pole a ♂ juv., forearm 29, wt. 3 gms., and a ♂ ad., forearm 34, $4\frac{1}{2}$ gms., testis 4×2 mm.



(Bat Banding)
Mystis n. nigricans

October 31, 1956

Barro Colorado Is., Canal Zone

Under roof New Laboratory. Under eaves in exterior
sun roof; inside and between eaves - under screen and on outer
side of screen of house.

few ✓ many inside
 ✓ x-soc. favorite

Most had 1 or 2 parasites on them. Some would stand tight,
others were slightly loose. Found 1 with 2 bands & 1 with 3.
Several had several in addition (1 or 2 or 3). Had 2 bands, right
forearm, one on left forearm.

Band No:

24-46501 ♂ - greenish brown - emaciated

02	+	"	23 ¹ / ₂	"	
03	?		35	ad.	
07	?		34	ad.	
05	♀		33	Dark upper enlarged.	
06	♀		35	" "	"
07	♀		35		
08	?		23	thin white	
09	?		34	much inflated veins; fast?.	
10	♂?		15	about 1 gram. Very naked, black,	
11	♂?		32	thin.	
12	♀		35	Very emac.; red toes fast in band.	
13	♀		30 ¹ / ₂	Very emac.	
24-46514	♀		34 ¹ / ₂	Very emac.	

Last evening saw 3 hairless young together on lid of oil setting can in attic above kitchen. // Examined ♀, 4¹/₂ years, forearm 33 mm. Nipper 1 mm. long, flattened. No milia. Comes well range; no smaller follicles; no uterine scars. Lt. skin turgid & translucent white.

C. Koford
1957

1

Noctilio labialis minor

December 5, 1956

Barro Colorado Is., Canal Zone

About 7:50 p.m. one caught in mist net 20' uphill (S.)
of lower pumphouse near Barlow-Lathrop O. ♀, regular-
tong in naked areas 3 mm. diam. Specimen #1875 CBK. 40' up-
slope from creek (clear, 6' wide), over open grassy slope.

C. Koford
1957

Pteronotus saepurensis s.

2 May 1957

Chiliborro caves Panama

about 20' above level of creek bed in cave, in a side chamber; the ceiling was thick with 300 (or 1700) of these, right packed, some red furred and some dull brown. I shot a dozen with one shot shell of .22 caliber. Put up some specimens, C. Hardisty (U.S.N.M.) did others. When light shined on group they swayed back & forth, wave-like, over squeaking. I collected a few hairs from specimens for Ernestine Thurman (Univ. Md.). Specimens 1943, 1944, 1945, 1953.

Saccopteryx bilineata
bat - vt

August 21, 1956

B. C. Island, Canal Zone

Between buttresses on big tree on foot Van Tyne trail saw about $\frac{45}{40}$ total, $\frac{35}{35}$ being in one area on S. side tree (w. spike ladder). (Aug. 18 saw about 35 in same sector of tree.) ~~& took~~ Took flash photographs of bats on trunk. Two white dorsal stripes.

September 8, 1956 about 40 in same sector of trunk, about 8 on other parts trunk. Moderately active & alert. Two white stripes on back (Saccopteryx bilineata?).

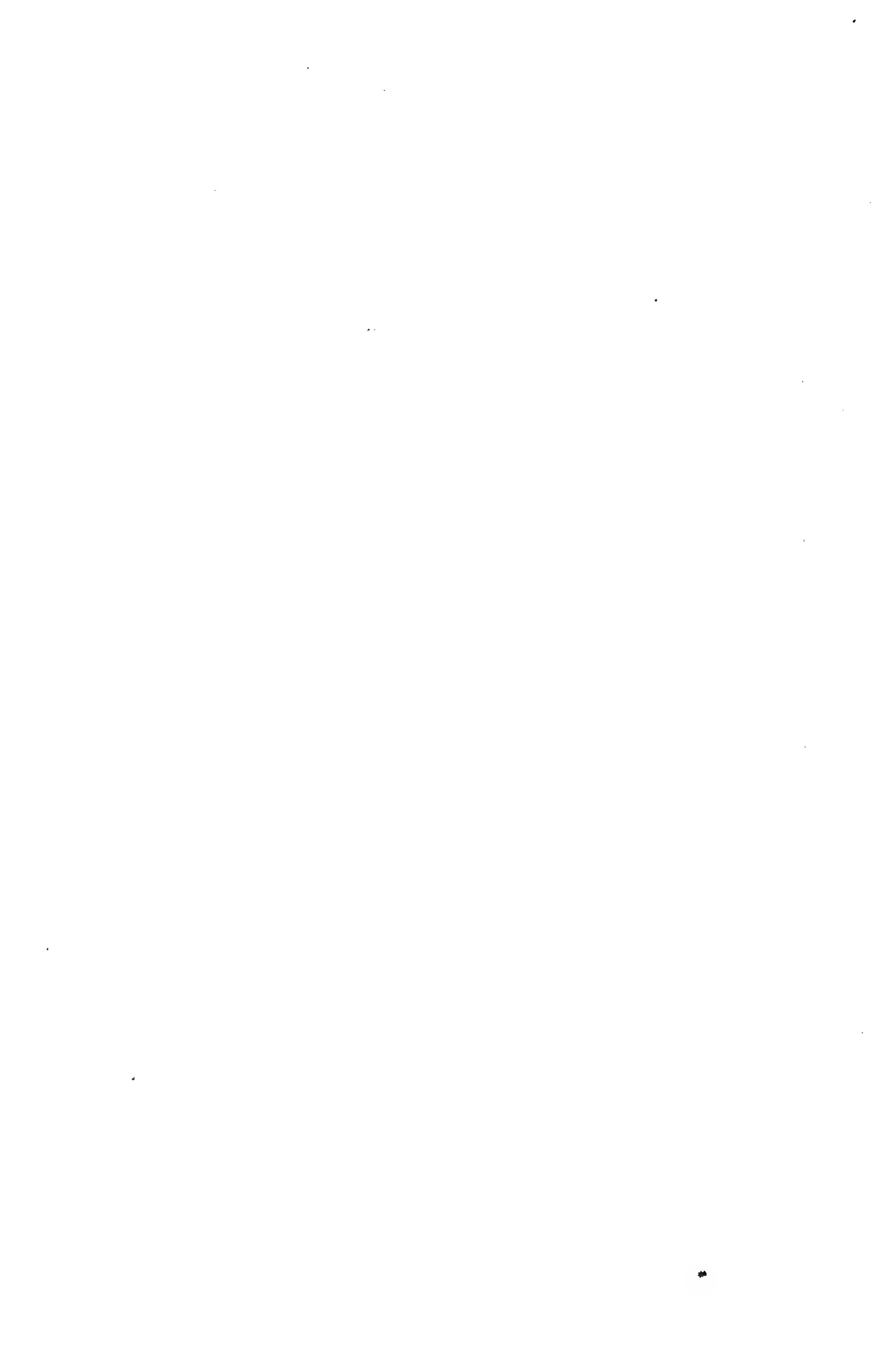
October 2, 1956 Saw about 4 on big trees on AMA (second tree on trail) Sept. 29 and Sept. 22. Today usual number on big tree on foot Van Tyne trail, about 30 on S. side, 8 on SE, 4 on N.

August 22, 1956 Took photos of group between buttresses on Big Tree on Van Tyne trail. ($3\frac{1}{4} \times 4\frac{1}{4}$). About 40 bats.

November 3, 1956 Netted #1828. At least 25 on tree between buttresses. I saw one with band on wing (sent by Hall group?).

October 31, 1956 Always half a dozen or more under eaves of east end of SE wall of old batch office. Odor somewhat Tadarida - like.

November $\frac{6}{2}$, 1956. There are about 6 in screen under eaves on S. side of 2 MA house today as usual. When perched on vertical wall tail up or well as now . Now 3 hanging 3" apart on rafters over boats under sheet metal roof. This evening saw a banded one on S. side ~~to~~ ^(as expected) Haskins Bldg. + netted it. # 58-81501, o₇, testes protruding. Released. Took some on SE side old batch office Nov. 12, 1956, + released.



Saccopteryx bilineata

November 22, 1956

About 8 p.m. netted a ♀^{♂?} on old Zetek office. It died being banded.
wt 8 gms., testes $4\frac{1}{2}$ mm. internal.

November 28, 1956. Four bats made one pair of buttresses
of Bombacopsis near west A.V.A. 8°.

December 11, 1956. about 7:15 a.m. at Big Tree on Van Tynne trail but saw
none at buttress site where usually 30±, though 3± on opposite side of
tree. None on A.V.A. Big Tree ± 2 either. Leaves now gone from these
trees & skies clear much of time - more light so don't expect
between these buttresses?

December 22, 1956. Many on the J.V.T. Big Tree. 3 on N. side,
13 on SE, 16 on S. The N. side was always low, within 10'
of ground level.

January 3, 1957. One taken in mist net near Club House evening. Banded
& released.

January 5, 1957. about 6 seen inside Tavern House, + 1 of an-
other species (= Micronycteris?).

January 10, 1957. Took one from trunk fig no. DC $1\frac{1}{2}$, & 5 from
trunk of Big Tree or Van Tynne trail. About 40 on ^{trunk} trunk of
this tree, said in dark recess only 6 ft. above ground. Two
♀'s examined & found to have no evidence smoldering in uterus,
but vulva slightly pigmented. About 4 hrs. after taken, I banded
and released 2 ♀'s and 2 ♂'s at 1952 Lab. (Bands 58-
81509 (♀, 6 gms., forearm 47), "100", 7 gms., forearm 47,
"119"; "120". 100± Phaleotomus flies seen between buttresses below
where bats roosted, & many collected by Ernestine Thurman.

January 12, 1957. all in same at Tavern taken (3), with 5 Micro-
nycteris. Two banded & released at 1952 Lab. (59-91513, ♀, nipples



Ecropteryx pectoralis

12 January 1957

Barro Colorado Island Zone

1 wide + 2 long, segmented tip, forearm 47, tib = 91 T/R 2.4, forearm
but forearm 40. If a bird is shot + killed it is blackish brown, with no
pigmentation evident. Rad. 3 st. at wing tip + ends at wing coverts +
their cluster at base tail down; 20+ primaries begin outside 10+
barred in Rott. At tip of wing, forearm + t. Head white at. ventral no
apparent, esp. on anterior. Tip of tail is wide + long, blackish.

15 January 1957. I saw about 30 on trunk of Big Tree on Van Tyne
trail, but none banded.

16 January 1957 at least 2 on outside of screen of Zeteh House
at end 52 trail (52-24). Three in Tower house, with 2 micro-
mysteries (in tin box on floor. None banded.

7 February 1957 I saw 2 in fence at Tower.

16 March 1957 usual 40+ bats on trunk of big tree on Van Tyne
trail.

^{1 April}
~~31 March~~ 1957 One ♀ in net at BL O in morning.

8½ gms. Lips segmented, 1 wide x ½ high. Vulva
slight pigment. 1 emb. C-R 13 mm. No ectoparasites.

24 April 1957

[La Jagua Club] 4 s. E. Pacora, Panama

Captured 3 and saw several others in cavities among fig vines
growing on base tree. Also saw ♀ + about 6 between buttress on
another tree. Two on trunk flew down + entered cavity, then
snaked out. This tree 100 yds. SW (?) of clubhouse. Claimed
these captured. ♀ forearm 47, 1 emb. 27 mm C-R. ♀, forearm
48, C-R 24 mm. ♂, forearm 45, testes 3 x 1½. ♀, rip. black, 3 mm.
long, forearm 47, 1 emb. C-R 23 mm. *Tympanum*, G. 3.

1 May 1957 In evening took one in net about 9 p.m. at edge
lawn near house 0277.

C. Koford
1957

Saccopteryx bilineata

2 May 1957

Chiliborro Caves, Panamá

I captured one in hand net several yards inside entrance to cave.

7 May 1957

Barro Colorado Is., C.Z.

About 10 one site and 25 another between buttress of Big Tree near J.V.T. f. None banded & no juvs. seen. None hanging behind aid Zeteki affec. usually.

11 June 1957 I saw 9 juveniles alive, each clinging to an adult, on trunk of the Big Tree on Van Teyne Trail. Evidently restricted breeding season as have watched for young since last summer.

C. Koford
1957

1.

Uroderma bilobatum

January 3, 1957.

Barro Colorado Is., Canal Zone

Have taken some (specimens in catalog) in clearing Mr. Chapman House. This morning took one in mist net near S.M.I. Forearm 43, wt. 20 gms; measurements 63-0-16-19. Clitoris segment vulva. Nipples slightly enlarged; turgid, 2×2 mm., + species segment. Pregnant; 1 emb. $1\frac{1}{2}$ C-R. // Another taken at S.M.I. in net in evening also pregnant; 1 emb. 20 mm. C-R. Bat wt 20 gms. after died in cage p.m. of Jan. 4. Forearm 43. Vulva lips segmented. Nipples turgid, $1\frac{1}{2} \times 1\frac{1}{2}$, not segmented, sparse fur adjacent to nipples. Fur gray instead brown lateral abdominal. Another ♀, noted Mr. Allee House. Forearm 43, wt. 18. Grayer than previous one (Brown). Measured 66-0-10-18. Nipples turgid, round tipped, 2×2 mm., not segmented, sparse hair around nipples. 1 emb., $10\frac{1}{2}$ mm. C-R. Rov. 1.9 long & bright orange color. Are those at Summit Gardens pregnant?

January 9, 1957 In talipot palms at Summit Gardens I took about 5 ♀♀ from cluster of 15±. appeared pregnant. Some roosting singly. I took one - ♂ with enlarged testes. ♀♀ together & ♂♂ single? Wary bats; not easy to take in net. Some had mites on wing membranes, + one fly seen on one. ♂ wt. 16, forearm 43, tes. $7\frac{1}{2} \times 5$, no apparent sperm, epididymides visible at $\times 9$ magnif. One ♀ wt. 22 forearm 44 pregnant, 1 emb. C-R 14, lgst. ov. 3×2 mm, pale orange. Four other ♀♀ 16-18 gms., embryos. C-R 14, 15, 17, + 8, 11, 13, + 16 mm.; major 2 mm. wide; turgid. A, open-anoid, no milky; lips vulva & anus dark gray.

29 January 1957 One flew into lower floor room of Chapman House in evening before 10 p.m. ♀, 20 gms., vag. surf., moderate

Rodentia Division

29 January 1957

Barro Colorado Is., Costa Rica

segment lips saliva; max. 2.8 mm, latitudinally bent Δ , no such in nipples (clear fluid expressed), emb. S-R 2.3 x 37).

5 April 1957 at ~~the same site~~ found a female mouse of frontolateral view - very pale, grayish, with long, thin, & slightly ^{downy} hair, & squeaked sharply, but was much darker than ^{downy} mouse, and more solid brown, no dorsal stripes, no white, and white under parts somewhat obscured. Tail 20 mm. wt. 19 gms, forearm 11.5 mm. Total weight 16 gms. Found one testis 6 x 4 mm., 81 others, ♀ with young.

Plumbeous Tanager.

- 7 February 1957 After a short 2 weeks here went hunting with the permission of the carmenes. Game (as it is) is very poor. Judged by tracks & marks made by the Indians this is due to hunting & game. To Portobelo, Colon, Panama
- 9 February 1957 With Col. Glodell and others, Sue & I went to Portobelo for the day (in army LCM from Colon). In room of old fort I saw about 6 bats & captured 2. In a large palm ^{were} about 10 which escaped. About a small leaf-nosed bat (= *Macroglossus*?) in small arm of a cove on side of highest part of fort.
- 12 April 1954 4 mi. E. 1 mi. S. Pacora, Panama. In evening a man named Bardelmo shot 6 capybaras. Estimated wt. 3 young 18 lbs. apiece, 3 large 45 to 60 lbs. The 3 large weighed 91 lbs. together when skinned & dressed. This info from "log" of La Jagua Gun Club, entry signed by Karl P. Curtis.
- 24 April 1954 Same [La Jagua] (w/), Panama. Visited club with Karl Curtis. Savannas, patches open forest, & low swampy ground. Set 20 snake & rat traps in light forest near clubhouse. Saw many rats in evening & shot a *Phyllostomus*. Took *Chiraycterus* from log & Scolecophylax from tree. *Wullos*, *Lutreolus*) said to be here, but I went out for an hour at night and saw none.
- 25 April 1954 Troops held 2 Pygmodontangs & Marmosa, and 1 Oryzomys.



C. Koford
1956

Birds - general - Panama

Barro Colorado, I.S.,

July 10, 1956 (Tues.)

(ZBA), Canal Zone

Eugene Eisenmann of New York here since Friday. He has a full bibliography & many notes on Panama birds, at P.Y. In a tall tree west of NewLab we saw oropendolas using nests (5 there in 1 group, at least 2 seen used). In same tree I saw 3 purple fruit doves - Eisenmann says little known of them tho' rather common here. On lake many black terns on stumps protruding above water. On wire at Frigoles so many martins, some grey-breasted and some of a S. Amer. species, fide Eisenmann.

August 15, 1956. Mrs. Carson (wife Dr. H. C. U. Penna.) found a nest ^{with} ~~with~~ 2 fresh eggs about 1 ft. above ground in dark forest near a log on Shannon trail (about $\frac{1}{2}$). Eggs pinkish, brown cloudy markings, end. ^{Probably} Perhaps an ant bird. It ran along ground; dark on back. She said it had blue ring around eye when first seen.

August 22, 1956. The commonest call in the forest is still the ant-shrike. Many heard on every walk in forest. (*Thamnophilus punctatus*)

September 4, 1956 Groups of as many as 4 ^{*Pteroglossus*} in *Acropia* or Nance or other trees at edge Main Old Lab Clearing.

September 16, 1956. On Sat. Aug. 28 there was a dove, large, orange eyes, on flat slab nest 9' above ground & halfway out branch of a nance tree, new plant of clearing NE of Old Lab. Today nest there & no ~~down~~ dove. A large dove, gray back, white on top tail feathers white lateral over mainly) seen several times in clearing near Old Lab too yesterday.

Birds - Second

September 16, 1956.

The orange tree near Dryden Station 1⁰⁰ in number
big birds - swallows, at least 2000+ perched in this
afternoon & roosted there. Same here as above & going off.
Yesterday kept out 9 "remany" bird feeders & caught them
with sugar water mixture. These at various points & need
jewelings in main drainage. The most productive being
just to the south of room, house & desk. However, one was with
green; that feeding mostly in former place & outside. F. &
P. flower were in feeding & so I set up another in a
drainage & the things down in it. / Birds here common with white
rump or long white or grey wings also in addition to large ones & the
large woodpecker ^{major} ~~halcyon~~ in a few cases seen outside at
edge of the city, 1½ miles from house.

September 22, 1956

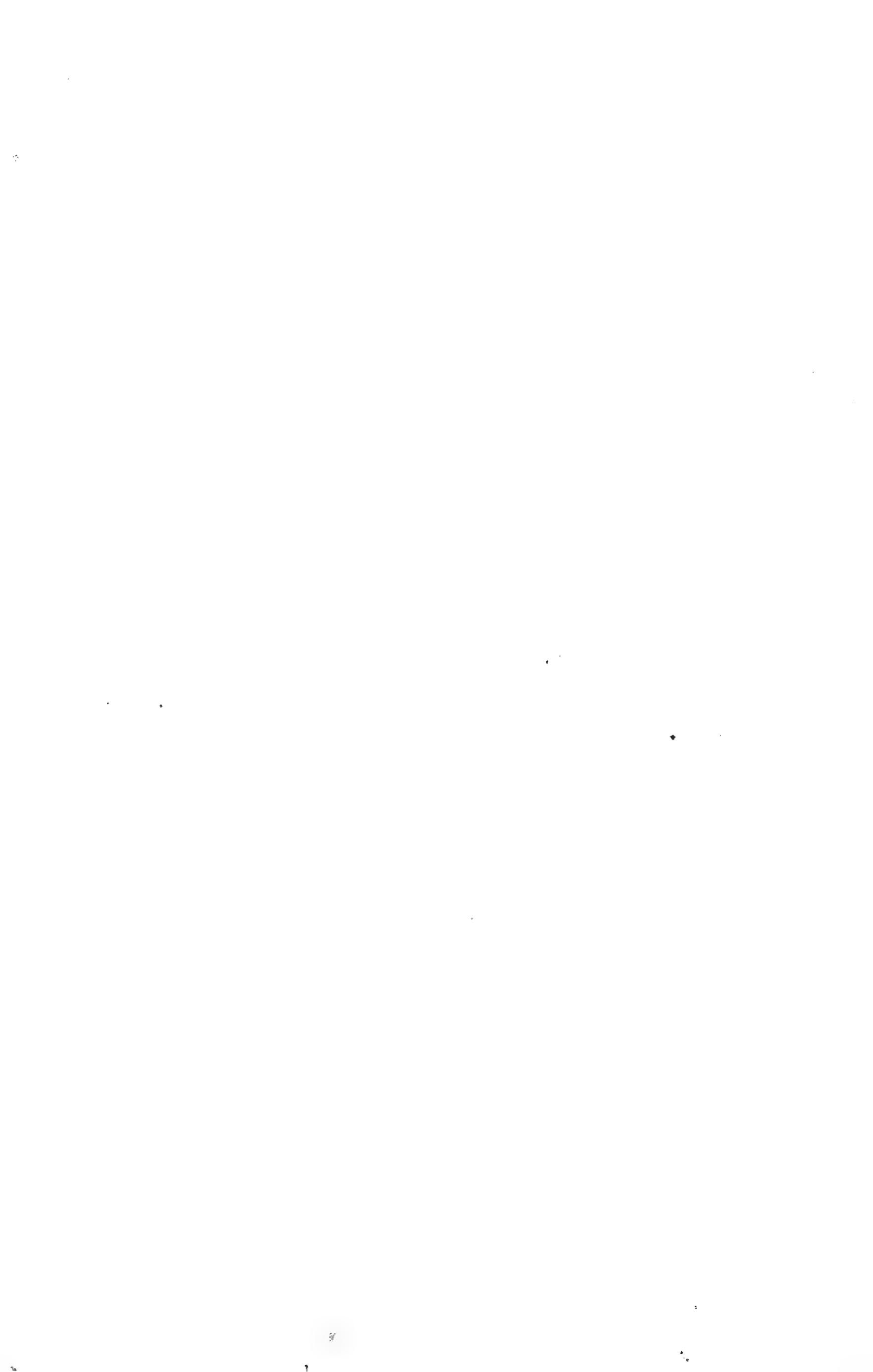
Gamboa, C.Z.

About 6 a.m. saw about 50 in Amazons in scattering
flock going east over lower slopes of Gamboa hill. Largest
and flock get new here. Usually only 2 to 6. Near Town
or trail saw a juvenile woodcreeper, apparently too young
to fly. Adult came to 6' of young. Both called in same
manner. Straight bill, buff streak on head & anterior
parts, rather uniform brown over rest of bird; banded
size. Feathers visible in tail. A fairly cool of several
rapid notes.

October 1, 1956. Saw a nightjar singing at 6 a.m.
& 100± swallows sailing over sloping buildings to 7 a.m.

October 5, 1956

~~Pear Order Lodge~~ Corral zone.
Saw several groups of 30± swallows, especially Buteos, with
long tails, some with transverse band, circling. (hot Swallows).



C Rofford
1956

3

Birds - general

October 23, 1956

Canal Zone

Conductor on train said he saw many hawks near Balbo Heights about 10 days ago. Once he saw great number near Bochio, apparently coming from west. Barro Colorado Is., C.Z.

October 24, 1956 Left mist net up where set for bats last eve. During day took a Myiozetetes similis imm. + an imm. Sporophila. Banded them + released. In day a Pipia mentalis got in Chapman House & flew against screen (or 1819). Small yellowish bird, apparently warbler, seen on shrubs + cultivated ^{or tongue} ~~among plants~~, then near buildings today. Saw one with metallic near-black back, head & neck black but crown + breast brilliant yellow. Another olive yellow with diffuse gray at tips wings & tail (dorsal). One yellowish with light line over eye.

Canal Zone

October 25, 1956 From Madden Wye to near Balbo Heights saw many hawks, apparently migrating east. Most seen over hills near Gaillard Highway mile 9, near Paraiso. Saw about 1000 in one milling bunch near Pedro Miguel gem club, then several bunches of 100 to 200 to near Ft. Clayton. at least 2000 within $\frac{1}{2}$ hour. Mostly Guanion hawks, the dark head + throat + pale under wing coverts being apparent, tails rather long + square tipped, wings rather pointed. Perhaps some other birds too (dark beneath, or Buteos). Numbers of turkey vultures circled with the flocks of hawks. The big groups milled in columns 1000' or more tall, rising, then birds glided east. There seen about

Birds - General

October 25, 1956

9:30 to 10 a.m. Overcast but not raining.

October 30, 1956 Saw

Barro Colorado Is., Canal Zone
 Saw about 2000 Cathartes aura in 20 minutes from Frigidaire area to over various parts of B.C.I. Also 100+ Swainson hawks in one group over B.C.I. 100+ plain-colored tanagers, palm tanager, yellow warbler, flycatcher, in net near SW corner Chapman House. Banded most & released.

October 31, 1956. Net up until 2 p.m. Found many plain-colored tanagers, and chestnut-sided warbler, then - a Dicrurus cyanocephalus (specimen) + green honeycreeper

November 3, 1956. Two Motacilla macrorhyncha? in mist net, Chapman House, midday. Banded & released. Black terns still over Ixaté Lake. Saw 2 Audubon's warbler on Lutz trail.

November 6, 1956.

October Saw a Coccyzus americanus in clearing, close, several times. At 8:30 p.m. a large brown woodpecker (Xiphorhynchus guttatus?) seen & flushed from under eaves of S. side of old French Office. (Later banded)

November 21, 1956 about 2 a.m. on nearly clear night with nearly full moon heard 3 kinds owls in area of beginning of Lutz and Donato trails. Apparent Bubatrix wails; a slurred soft but clear whistle G-A-G and perhaps descending, as heard one night earlier this month; a short, single explosive short bout of whistle quality, note D, occasionally followed by a similar bout about a note higher (like Bubo v.?)

November 23, 1956. Again heard single strong bout about 6 in early A.M. near start of Lutz trail.

Birds - General

November 29, 1956

Barro Colorado Is., Canal Zone

Mild rain yesterday. Bird caught in net this morning, as if because restricted activity yesterday. Took a Phaethornis superciliosus in net at edge water tank just w. of new lab., + a Dysithamnus at same time. Did not band P. supercil. as foot too small.

November 28, 1956 Robert Cushman Murphy here today. He saw black tern, laughing gull, and $30 \pm$ lesser scaups on Lagoon Lake in crossing from Frijoles. Many small birds in blooming Sesbania (yellow), including tiny hummingbird. Took a Damophila julie panamensis in mist net near Chapman House Nov. 29. This first flock of ducks seen this fall, tho' odds seen within last few weeks.

December 8, 1956 On Big Tree on Van Tyne trail saw a large hawk with black & white bars on wings + tail, with crest of white feathers tipped with black, ~~so~~ evidently Spizaetus melanoleucus. Large parrots in flocks 40 seen over clearing. Crossing from Frijoles saw black tern, and raft of $50 \pm$ ducks.

December 13, 1956. Saw 20+ scaups in crossing to Frijoles. a Stena Chlidonias niger and 3 Strongylocephalus seen too.

December 18, 1956. The hummingbird feeders continue to give no results. Two are located within 6 ft. of Isertia in front of ¹⁹²⁴~~1952~~ Bldg., but hummingbird feeds only at the real flowers on the shrub. This bush reproduces here and has born flowers continuously since July 1, or earlier.

December 23, 1956 Heard Quetzal and Barbulyndus and saw one atop bare Sesbania; first seen recently.

December 29, 1956 One or two heard today + by visitors during past few days (Zenaidurus) - the deep bubbling call. The

C. Koford
1956
1957

6

Birds - General

December 29, 1956

Thamnophilus punctatus

Cyanoloxiaruficeps still commonly heard in forest, and seen in deep forest (ATA trail). Saw a large one with white marks around eyes near town. Two Tityra feeding on Gaura (?) shrub fruits 50 yds. W. of Test Table Bldg.

January 2, 1957. Crossing Fregate to B.C.I. saw 40+ birds including scangs & some with white in front eyes (blue winged teal?).
^{Female 500+ P?}

21-26 January 1957 In mist nets nr. Chapman House and 1952 Lab I took 2 Floriagea, 1 Damophila, and 2 Thalurania hummingbirds. Tried to keep in cages but all died within 3 hours. I put bill into sugar-water feeder to show bird use. One was put in large screened room, others in 1 ft. square wire cages. Testes all 2 1/2 mm. (2 mm. Damophila) in diam., & all 5 were pt.

31 January 1957 ♀ taken 9 a.m. tied in captivity in room. Lgst. over. 3 mm. diam. 3 yellow corpora lutea. Looks like Anisognathus but stell base tail. Possible broad patches, insects in stomach.

4 February 1957 With Ernest Greenwalt & Mr. & Mrs. Rodman Ward, Sue & I went by PC Launch "Runner" to Pocheba Is. in Pearl Island group. Hundreds of Fregata nesting in shrubs on rocky steep shore. We took many photos. One group of about 60 white egrets in shrubs & trees 100 yds. up steep slope. Boobies flying nearby, & a few hundred pelicans perched, swimming, or flying. Large, bouldered shore with clear water, many crabs & snails - a beautiful coast line. Fregate birds could be approached to 5 yds. without leaving nest. A few with down up near bladders. These

Birds - General

4 February 1957 Peacock Is., Pearl Islands, Panama
Woke up & satle in bddle at time. On at 7th east side
of Peacock had mostly quiet sleeping sandy beach. Adjacent
rocky Parqueada had many boobies & pelicans perched
but no nesting evident now. This island had much
Cocospia but also sprig leather, & general aspect was very
dry. Perhaps no water on island. In route we saw large
grey bottle-nosed porpoise about 6 ft, a larger manatee-type
ray which kept clear of water again & again. Small birds
occasional, & 2 or 3 pelicans seen. Many sunbirds aplenty. The
trip from Mine Dock of Ft. Amador required 3 hr. each way,
mostly into wind on return trip. We caught a fish about
2' long near Parqueada.

Colon to Portobello, Colon, Panama
9 February 1957
Going Colon to Portobello in sandy morning I saw few sea
birds - a few terns & perhaps a apparent Procellariaiformes.
Large swells, & windy, at Portobello bays said roosted sulphuric
(thick-billed). We found two nearly fledged
^{Gorg-tips} black vultures in a cave at side of high part fort.
Cave 8' high x 10' wide, & birds retreated into arm 2' wide &
4' deep. No regurgitation noted, but lessied. Damp dark
sooty gray. Kasan took photos, & I took a Kodachrome
of site.

26 February 1957 On 9-12 a.m. walk saw pair of large
woodpeckers (*Dryocopus* ^{and} *Picococcyx*) near WNW 4,
WNW 10, and WNW 13.

19 March 1957 There is a nest of blue gray tanager in
small tree near SW corner of 2 MA house. Apparently a nest of
palm tanagers with young in block palm at NW corner of

Birds - General

19 March 1957

Barro Colorado Is., Canal Zone

Chapman House.

23 March 1957 at WNW $14\frac{1}{4}$ a mealy parrot in tree over trail eating 2" long green fruit (almond-like bush, fibrous orange within, sticky juice).

26 March 1957 I saw a flock of approx. 100 hawks going over top of island heading NW. These pale underneath with possible dark band across end of tail. Broad-winged? About 50 Swainson hawks seen in another flock. A hot smoky day.

23 March 1957 I heard a bird I am not sure of here a with adult. It was probably a white-throated dove as seen in the same place at the same month.

old Chichi House

30 March 1957 In evenings an owl called to N. of Allee House, aa oo' aa oo'; lasts one second with one second between. Sharp accent on second syllable.

2 April 1957 This call said by indigenous Indians to be Cicada neogracilis. I heard it again near Chapman House in early a.m. of 3 April.

3 April 1957 A large dove was seen on a low part of mesa during the last morning. Last morning also saw a lot of small birds (Papagelia), a young one with a red crest, white-breasted finches & sparrow-like at top of mesa. Then flew into hole in the rock formation. There were no nests in hole above in water, see 10' up in hole. Indians said they were of Papagelia.

6 April 1957 a dove nest (large down) with nearly fledged young in tree 100+ yds. from shore near N. end of Rachel Is. I took 35 m. on side. Last of 1' 10", 2' down water level on the top base of marsh.

Birds - General

7 April 1957

Crain Rd., station 10, 1000 ft.

One side of hill back to 1000 ft. was open
scrubby vegetation, mostly palm,
 & the other side in shade, it's more dense
 giving a mixed look, with palm,
 & the larger trees, but
 with mixed undergrowth. At 1000 ft.
 palms scattered here and there. During the 1956
 6' contour road, I saw at least 1000 ft. of
 scrub.

20 April 1957 Saw some palm seedlings, still
 small, scattered here and there, common.

3 May 1957 Toui parakeets, now in flocks of 10+, some-
 times in balsa (or seed), near Chapman House.

5 May 1957. Went up Chagres from La Boca to Juan Diaz.
 Saw 30+ Toui parakeets in mango tree at Juan Diaz.



See Species

Accounts



C.Koford
1956

1

Tinamidae

Tinamus major

October 24, 1956

Barro Colorado Is., G.Z.

Heard calling 6:25 a.m., & at 5:55 last evening, from Chapman House.

November 13, 1956 In area N.E. of Chapman House first evening radio heard 5:45 p.m. Nearly always heard in evening in area 100 yds. SW of Chapman House.

November 22, 1956. About 4 p.m. saw one walking up-slope about 50 yds. into forest SSE of Chapman House.

November 28, 1956. Heard one about 50 yds. S. of SM 1 1/2 in evening, another perhaps 1/4 mi. N. of it. Saw one on trail near Wheeler 15 about 11:15 a.m.

December 11, 1956 In vicinity J25 heard several times during overcast day. Usually near Lab-hed only 5:45 to 6 p.m. and about 8:30 a.m.

January 4, 1957. Heard at 2 p.m. in forest N. of mouth of allee Creek. At night heard calling at 10 p.m. (also previous eve) from Chapman House. (Also heard 1 a.m. Jan 5).

January 5, 1957. Saw 1 walk across trail at AAT 5 11 a.m.

23 March 1957 Kirby Hartmann brought in two broken blue eggs. These he found close to base of tree, between buttress, near TB 3 (about 50 yds. N. of, fig tree). Apparently no nest structure. Teeth or claw marks penetrated eggs from outside. Apparently fresh eggs destroyed by carnivore. 11

27 March 1957 Lat. n. Last night I heard calling at least 4 separate times near clearing to Hoc N. + S. of Chapman House.

20 April 1957. Flushed one from ground next to creek bed at AH Conrad 2.

C. Koford
1957

2

Tinamous

7 May 1957

Barro Colorado Is., C.Z.

at 11 a.m. one flew away from near tree 20' from Donatotril about 4.7. Then another left the spot, running in low squirming fashion. at base of tree between buttresses was a single greenish-blue egg almost hidden by dry leaves. No nest structure. About 2:20 p.m. I returned & photographed the site. Saw no tinamous, but 6' from nest was a snake about 6 feet long. (Body mostly black with yellow areas. Ventrally bright yellow, including head. Head pointed; d-w. flat, black above, yellow below.)

C. Koford
1957

Anhingidae

Anhinga anhinga

6 February 1957

Barro Colorado Is., Jan. Zone

I saw one in Fuerter Estero about half way in inlet, perched atop shrub in water, & another near mouth of next inlet to W.

22 February 1957 I saw one near NW end of New Plantation Pt.

12 March 1957 I saw one perched in inlet N of Slothia

5 May 1957

negres River, C. Z.

Going Gamboa to Juan Meria saw about 5, singing, perched on branches near water. ^{Two} One jumped into water & dove out of sight.

C. Koford
1956

Cathartidae
Cathartes aura

October 30, 1956

Panama City, low land Zone

Fresh feeling morning with sun breaking + a slight breeze. Our part migratory flight of winter. About 20 over Bojaca area, but gliding there from various groups over B.C.D. about 2000 seen in 10 minute period 8:15 - 8:25 a.m. + few hours with some over B.C.D.

24 January 1957 At least 2 flew up from near carcass of a coati put out yesterday afternoon (killed then) and perched 20' up in nearby trees in mature forest near A.V.A. 12.

24 February 1957 Dr. A. Wetmore saw large numbers apparently migrating near Panama city.

1 March 1957 about 8:30 a.m. I saw about 50 flying N.W. from near Summit Gardens, and about 50 perched in various trees (12 in single tree) in the gardens. Other large groups seen between Summit + Pedro Miguel.

3 April 1957 A. Wetmore thinks he can distinguish resident (yellow bands across hindneck + rhomboidal area on crown) from migrant race. He says he has material for revision of Cathartes.



Buteo swainsoni

October 25, 1956

Sara Zone

More than 1000 about 2000 seen within 12 km between Mullen
Wye and Ft. Clayton. Flying in mixing. Number of 100 or
several hundred, then gliding to east (see Birdy, p. 13)

October 30, 1956 Many turkey vultures over Davis grounds
today. One separate group mainly buzzard hawking, about 100
mixing.

Falconidae

Daptrius americanus

October 21, 1956

Barro Colorado Is., C.Z.

About 3:30 p.m. heard loud hoarse parrot-like squawks to N. of 1924 Bldg. Later it moved to 75 yds. NW of New Lab & I had good view. Called often, sometimes 3 squawks in succession, & very loud. Black breast & white belly. Red around bill.

November 13, 1956 About 8:30 a.m. heard much calling & saw 2 atop large tree 75 yds. NW of New Lab.

16 January 1957 At A VA 8½, east side trail, two screaming loudly at me below, first an apparent ♀, then a ♂ 100' distant and lower, about 40 ft. overhead. screams like Cebus or parrot, go again and again, for 5 min. +. 19 January found fledgling of Bucanetes near site.

23 January 1957 Near A VA 8 two screaming high in trees, apparently feeding on wasp nest. Nest on side of large branch 80 ft. up, shaped  , about 6 ft. long. one cara-cara hung to trunk and "attached nest with bill, knocking off pieces. The raucous calls & fast flight reminiscent of large parrot. Bocanegra says this kind of wasp has "siete casas."

12 February 1957 Near A 1A trail about 6 saw 2 calling loudly 50 ft. up in trees. They seemed to scream at people below them.

20 April 1957 Same one calling near 8-2. went 7 days ago doesn't seem place.

Petelope purpurascens

December 22, 1956

Burro Colorado Island, Guad Zone

In evening one apparently chasing another (intruding or?) from trees 100 + 50 yds. east of Chapman House. Call a loud "queenki" at rate 3 / second. Louder and hoarser when flying.

January 6, 1957. Near JZ 7, Sue Koford saw 3 flying. Heard calls.

16 January 1957. Mr. Deusing saw 2 fly across clearing near Kitchen.

23 January 1957. I saw 2 fly across clearing NW to SE and land in trees near boat landing.

29 January 1957. Two flew N. across clearing near boat dock about 6:15 p.m.

7 February 1957 Heard & saw one 200 yds. N of 1952 Lot 4 p.m.

16 February 1957 about 6 p.m. two flew across clearing below Foreman's House, N. to S., landing in tall almonds on point, one about a minute after the other.

chta f.5 - guide 40 - f 10 to 5
good.

C. Koford
1956

Accipitridae
Leucopternis albicollis

September 16, 1956

Barro Colorado Is., C. Z.

One circling 200 yds. NE of dock 11 a.m., 200' up.

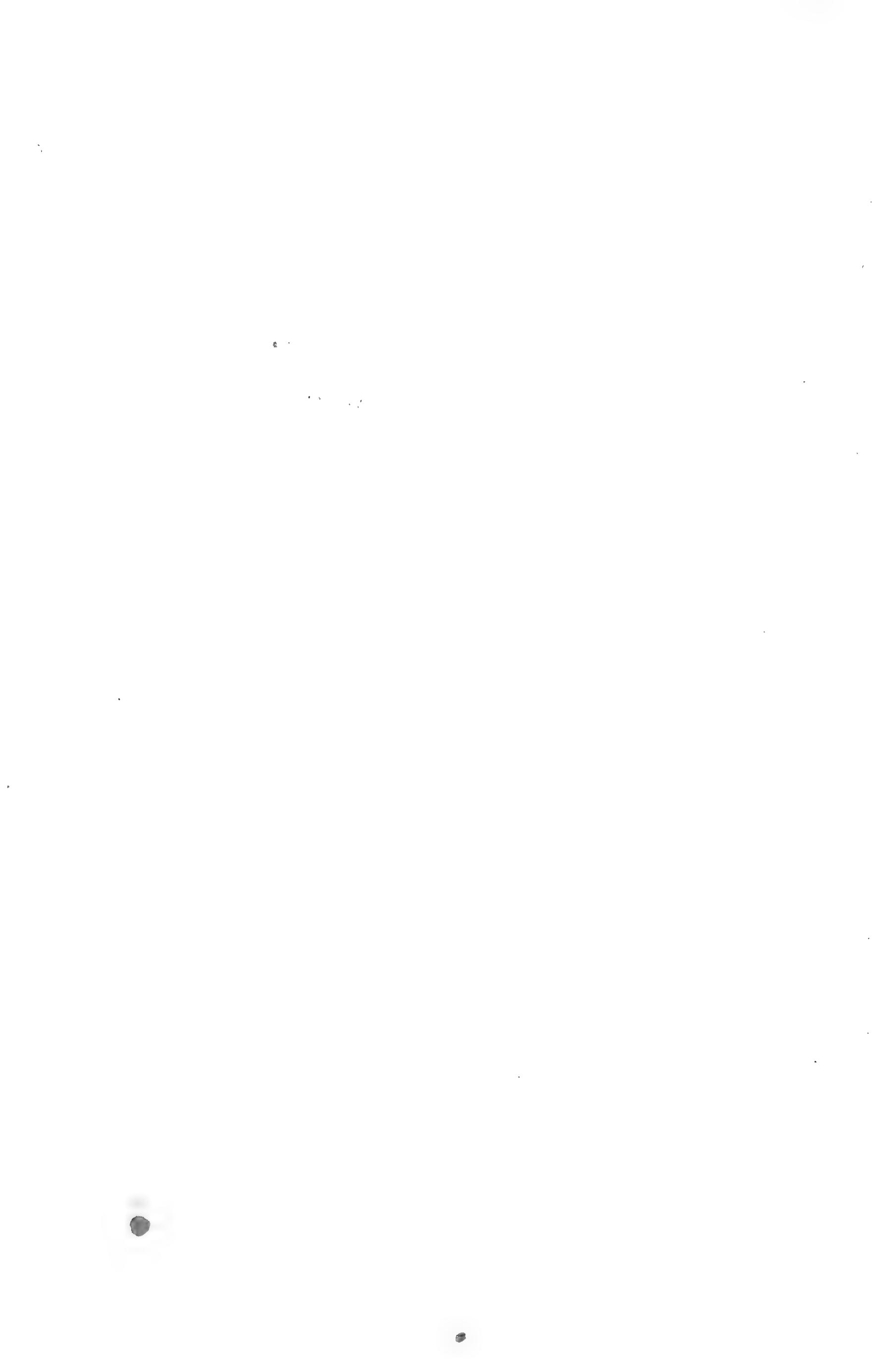
October 17, 1956 at 11 a.m. one perched in tree at edge clearing 50 yds. SW of New Lab. Took photos ($3\frac{1}{4} \times 4\frac{1}{4}$). Two Celus at edge clearing below were apparent attraction. Hawk allowed approach by me to 100 ft. On a lower open branch of tree.

January 3, 1957. J. E. Gray reported he saw 2 near Lab.

I saw one gliding gliding near clearing Dec. 31, 1956.

15 January 1957. In afternoon I saw one carrying snake in flight above trees S. of 1924 Bldg. Going to nest? Snake dangled, perhaps 1 $\frac{1}{2}$ ft. long.

26 February 1957 I saw one circling to W. of 1952 Lab.



Pandionidae

Pandion haliaetus

October 20, 1956

Barro Colorado Is., C.Z.

At 4:20 p.m. I saw one perched on top of snag in lake about 300 yds. NE of Sheldrake Is. Usually saw another perch in this tree.

October 31, 1956 4:40 p.m. one perched on same snag. It flew carrying object (fish?) in claws (or claws?).

November 14, 1956. One perched in in tree near Plantation Pt. about 5:30 p.m., dove into water, flew straight S across inlet (carrying to nest?).

November 28, 1956. Again saw one, $\frac{1}{4}$ mile N. of 1924 Bldg.

December 29, 1956. Saw one flying near Drayton House.

January 10, 1957 Saw one flying over bay near Drayton House.

21 April 1958 Landed on a small tree for a while.

Cracidae

Penelope *purpurascens*
crisata

July 27, 1956

Barro Colorado Island, Canal zone

About 6:30 a.m. I saw 1 on lowest horizontal branch of crown of tall tree 150 yds. NW of New Lab. It sat, walked, & finally flew as another approached it along branch. Pair?

November 3, 1956. Two seen on open branch of large tree west of Donato 3 about noon. No calls heard.

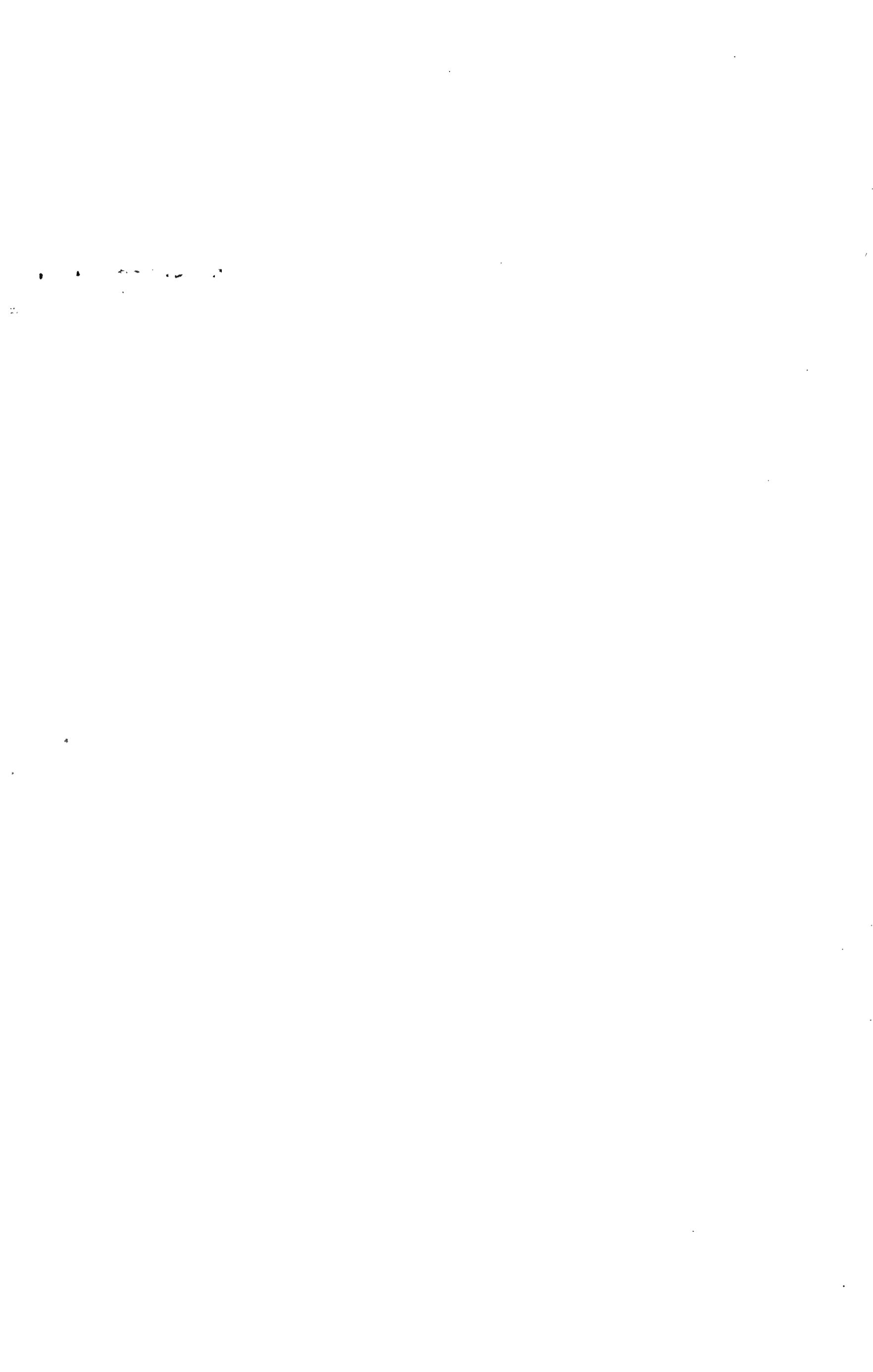
November 13, 1957. In evening at 5:45 p.m. saw 2 in top of 50' tall tree 200 yds. NE of Plantation Point. Last month saw ~~2~~ ~~one day man~~ No calls heard.

December ~~12~~ ¹², 1956. Two perched about 6:30 a.m. in trees 50 yds. SE of Chapman House, on same limb. One or two seen during day in trees SE of Barbour House. Two seen in trees near J2 0 to 4, together.

December 13, 1956. In early a.m. about 6:30 two in balsa SE of Chapman House. One calling, whistle sol-la, short, followed by low "ugh" or buzz about 1 second long. Slightly they flew across clearing to NW side of Test Table Bldg. // Often heard about 200 yds. SE of Chapman House.

December 16, 1956. Two in Spondias 50 yds. E. of Barbour House, apparently eating fruit. Remained perched & ~~walked~~ mated during rainstorm. // Saw one in balsa by Chapman House. // The call followed by low bark heard in area W. of 1952 Laboratory. The frequency of sighting pairs & frequent vocalizations may indicate mating activity.

December 19, 1956. Two flew from NNW to 55 E of 1952 Bldg. & later were seen in Spondias 50 yds. from the Bldg.



Koford
1957

Jacana jacana

3 February 1957

Barro Colorado, C. Z.

I saw one in estero near end of W.M.U. trail.

Frigoles, C.Z.

6 February 1957 I saw about 4 piping near shore about 300 yds. before reaching landing at Frigoles (from BCI).

20 April 1957 20. - on river bank at first of upper Rio Chico I saw 2 or 3. There were some with white markings and some with black.

5 May 1957 In up Rio Chico river from San Jose to Paseo Mina, I saw about 100 on weeds in water.

Oxford

Syrinxia
Characteres

November 2, 1956

Burns Woods, C.I.C.

~~although this was reported for B.C.D. -~~ Then about 1 p.m.
a small one (this is very) apparently plain ventral gray
below seen on vine over trail after whistling call heard.
Single call, however - especially in last part. Perched
now in vine over + ¹⁹ e. Crossing road at this very
imitating. That heard before any others. Medicine has water
area at Sheepian Haven as breeding habitat. Burns
village signed.

December 29, 1956. Flushed a large one, gray backed, near
Tower. It flew down trail to S. and perched. Narrow white line
around eyes. Flushed about 11:30 a.m. = Pulsatrix

January 4, 1957. Heard in evening and early morning to W. of
1952 Lab (if the woods sound right). Also hear - Heard
some whistling calls as Nov. 2, to N. of 1924 Bldg.

+7 April 1957 of same one perched on tree in open - combination
of long notes, then a series of short notes.

strigidae

Pulsatrix perspicillata

July 19, 1956

BC Island, Canal Zone.

Saw one about 15' above ground under leaf canopy in dark wood 100 yds NW of New Lab about 6:40 a.m. A Monotis was giving mot-mot-mot ~~just a few notes of wop-wop~~
loud too, from his other. and deep double coos.
 No owl voice heard.

October 6 (about), 1956. In evening heard call of 6 low notes, 3/sec., pul-pul-pul, of quality of shaken large plywood sheet. Repeated again & again, 100 yds. W. of New Lab. About a week before heard similar calls in evening 200 yds SE of Chapman House, followed by higher & softer answer of 5 notes, both repeated again & again. This time I thought it might be a large frog or toad. Could be large owl.

October 31, 1956 at ~~4:40 p.m. one of same calling~~
^{5 a.m. one of same} W. of New Lab. Like shaking wooden wand back & forth.

November 21, 1956 2 to 3 a.m. One, ^(?) calling repeatedly in vicinity of Donato Yr, apparently high in trees. Little musical quality. Like knocking 5 or 6 times on panel of wood door, last 2 or 3 knocks being gentler than first 3. 3/sec.

December 5, 1956. Heard again 100 yds. N.W. of Test Table Blk., about 6 a.m., with apparent answering call.

January 4, 1957. Heard (wooden panel knock) in evening and early morning west of 1952 Lab.

23 January 1957 Heard in early morning N. of Alice House.

19 January 1957 Saw 2 about 20 yds. left of AVA trail near 9. Perched 10' apart, 15' above ground, in lower branches tree. About 4 pellets containing bones & hair below perch, suggesting previous use.

Pulsatrix

219 February 1957

Barro Colorado, Canal Zone.

Moderate white excrement on ground. Perch branches about finger-sized.

23 February 1957 again heard the "Door knocking" call to W.
of 1952 Rob.

Mr. Cantanhede made a record moment 33.

217 April 1957 Found a dead bird on the floor where you'd
written in re. to 1952. A bit after flight from the nest.

Koford

Apodidae

chaetura ?

July 19, 1956

B.C. Island, Canal Zone

about July 10 Dan Eugene Oermann told me he saw unknown swifts over clearing. Tonight (in evening) I saw at least 5 about 150 feet up in area of New Lab.

October 23 1956 About 4 p.m. saw 2 swifts high over New Lab. appeared all black below. Another seen over lake halfway to Frigoles from B.C.I. headquarters.

Trochilidae

Thalurania furcata

November 7, 1956

Barro Colorado Is. Cana, Costa Rica

Have seen one many times at Santa Fe near NE of 1924 Building, & at Malaya upper flower bed 50 yds. NW of Kitchen (in October). Today took two shot at different times in mist net near balsa tree SE of Japanese House. One died in bag in captivity (♂ 10%). Other landed & 205 on right tarsus + released.

23 January 1957 One taken in mist net near balsa next to Chapman House. Put in room, & soon after found dead near screened window. 24 Jan took one in net W. of 1952 Lab. Placed in small cage & covered. An hour later dead in cage.

30 January 1957 One taken in mist net & died in captivity after about an hour. ♂, testis 3 mm. brain.

Caprimulgidae

Unidentified

December 1, 1956

Barro Colorado Is., C.Z.

about 100yds. behind Barroso Point House flushed one from trail. Pale dusky bands near wingtips ♂, ♀
about a week ago found a dark one with no white on wing
dead on road near summit. Brown + black wattle wing, upper surf.

Caprimulgidae

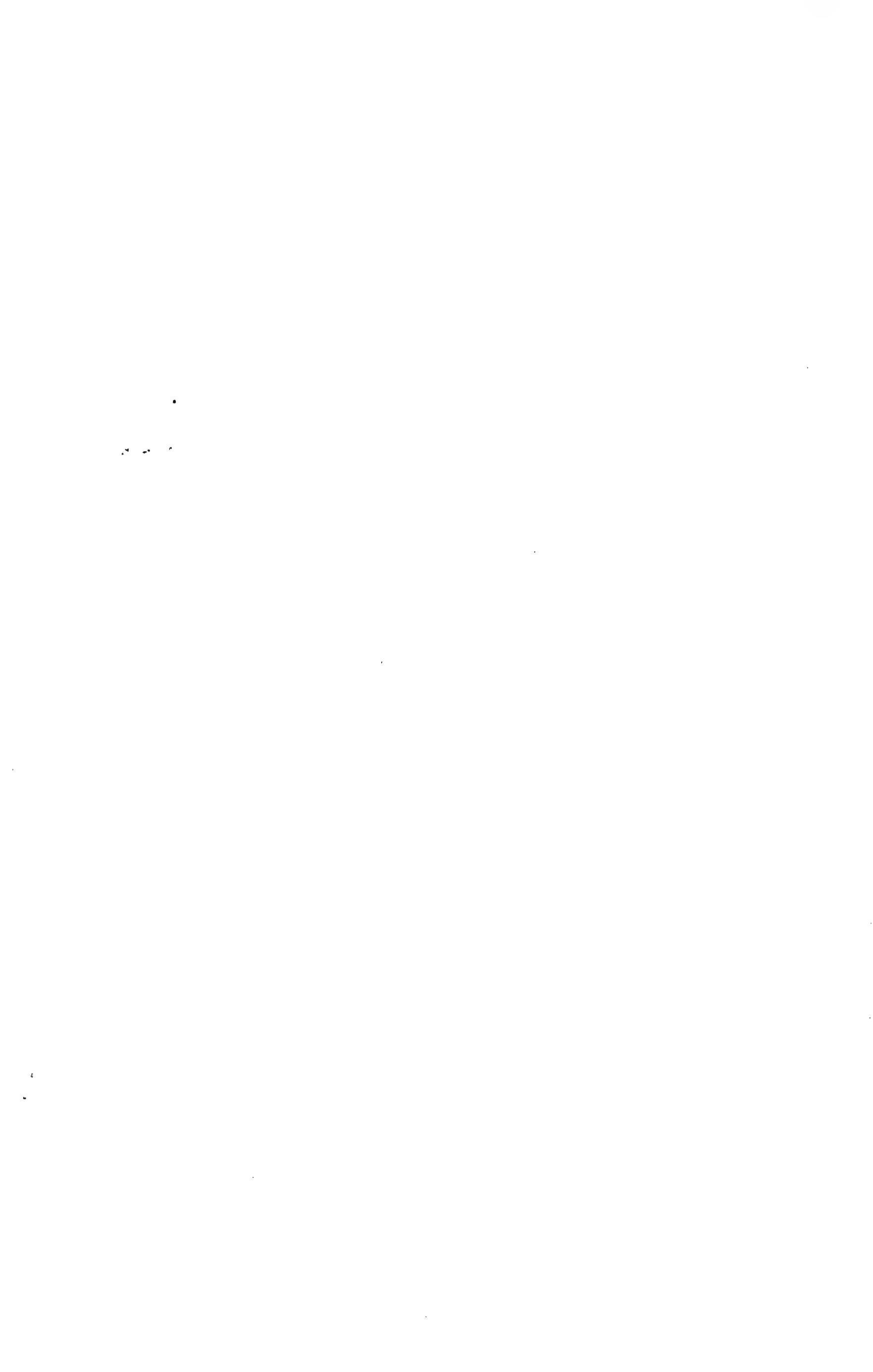
Circus sp.

Night hawk

September 8, 1956

Bands recovered in Jan

In evening I saw one with 3 rings and closing its wings
wings apparently feeding. No. Balboa, C.Z.Oct October 1, 1956. Saw about 5 in evening near Ft.
Clayton.



Cuculidae

Coccyzus americanus

November 6, 1956 Barro Colorado Is., Canal Zone.
about 2 p.m. we parked at 3' above ground in shade near
Chapman House, then in sun near 14^o + Building, on
rail down Roto steps, & finally seen at edge lake near
boat landing. Could be approached to 30'. Center tail feathers
missing giving fantailed appearance.

Cuculidae

Crotophaga ani

October 23, 1956

Barro Colorado Is., C.Z.

About 9 a.m. 5 in low shrubs 50 yds. S.E. of New Lab; calling much. Perhaps feeding on grubs in old log. Saw about same number in vicinity about Oct. 20, but not previously noted (since July 1 or earlier).

October 30, 1956 again saw and 3 were singing & calling.

November 6, 1956. Saw 4 more in trees near Little Stream below Bay's House.

November 13, 1956. About 5 in shrubs on Stothia Island at 3 p.m.

December 22, 1956. Heard nr. Chapman House

Dec 1, 1957. Several on vines near Allee Creek between Bay's House.

15 January 1957 Saw 1 or 2 several times during day, & heard, near Kitchen & allee House.

21 January 1957 a few near Chapman House & 1952 Lab.

21 April 1957 + pair of 3 others near 1952 Lab.



c Koford
1957

Thamnophilus punctatus

23 January 1957

Barro Colorado Is., C. Z.

Nest found 50 yds. N of AVA 12, about 7' from trunk of 2' diam tree in 10' tall shrub, 1' from central stalk on lateral branch. Woven of fine blade roots, hanging between fork of branches. about 3" diam. & 3 deep. Bird flushed. A ♂ seen 5 yds. distant. Two eggs in nest, apparently fresh. Pale buff with fine to coarse red-brown splashes, especially toward end. Also seen & examined by Frank W. Preston. Bocanegra said a snake would get the eggs if we touched nest (by smell). (Next day eggs gone, & I took nest). Nest had ^{fuzzy} pink green moss, chenille-like, interwoven. about 8' above ground. I have seen several similar old nests; this first with eggs ^{seen by} ~~found~~ me (Boca found it). When eggs gone at 3 p.m. on 24 January 1957, the thin shrub appeared unbroken, so perhaps snake or bird took rather than mammal. 2 March 1957 Remains most commonly seen & heard bird in the forest.

Koford

1

Cotingidae

Puerula purpurata

July 10, 1956

Barro Colorado Is., Guat Zone

Three seen in tall tree 50 yds. W. of New Lab. ^{Eugene} Cessmann thought probably nesting nearby. I saw one in watery red fruited tree 50 yds. N of this tall tree.

November 6, 1956. Rarely seen near New Lab. last month or more. Today two, one red breasted & other not, seen on SM about 4 (near strangler fig), 20 ft. up. Fair?

December 1 (about), 1956. Saw 2, calling much, on AVA near Big Trees (AVA 6?).

December 29, 1956. At AVA 7 saw 2 in Ecropia, feeding, apparently on part of flower. A Phileoecetes melanoleucus higher in same tree. Both near Alouatta band.

January 5, 1957. Two calling at SM 6, at least 1 ♂.

19 January 1957 Two calling near pineapple thicket 50 yds. E. of AVA 9, + seen. Apparently jay-like squawks and a pleasant whistling call.

13 February 1957 Some rain in night, + many calling about 8 a.m. after cleared. Arthur Fast saw one leave a nest high in foliaged tree W. of 1952 Lab about 8:45 a.m. Later he saw several visits, as if adult feeding young.

All visits apparently by the ♂ (deep purple throat). Mr. Fast saw visits at 9:03, 9:09, 9:13, 9:25 one to tree + into nest when ♂ came. 9:27 ♂ to nest + ~~stayed~~ stayed 3½ min. On edge as if looking in. None by 10:00 when sun was up, ~~or~~ ^{any} by 11:30 a.m. 1:45 to 3:45 none came. Building nest? // During next few days Mr. Fast watched but ~~saw no nest~~ some more

14 February 1957 Fast arrived 8:01 and saw one bird (?)

Querula purpurata

14 February 1957 Barro Colorado Is., Canal Zone
Leave nest. 8:27 1/2, ♀ to edge nest few seconds. 8:29, ♀ to
edge nest momentarily. 8:40, becoming cloudy. Occasional
rain. No further activity at nest by 11 a.m.

15 February 1957 Arthur Fast observed nest 6:35 to
7:05 a.m.; then 7:40 on, but no birds to nest. At 8:18
a.m. two apparent Querula perched in tall tree near nest
for 10 seconds. No activity at nest by 10:30 a.m.

1 June 1957 Dr. S. Hughes - Schröderthüller's nest in Eucodia (?)
nest near to Fuentes House has nest of this species. She saw fruit
so may eat cicadas.

C. Koford
1956

Pipra mentalis

JAN 27 1957 In morning W. E. Landy saw ♂ & 2 apparent ♀♀ near SM trail near 2, to N. Humming & clicking of bills heard. A few days earlier Merv Denslow heard & saw similar on TGP trail about 8 or 9' apart from termite nest on palm trunk.

29 January 1957 I took me & a student out near TB1. Found a room in captivity. of 2 males 3' apart. No song.
31 January, 1957. Mr. Paul Hawes reported seeing 3 on TGP at 5^{p.m.} today, displaying, station to one another.

17 March 1957 Mr. Hawes had often seen them again near same site, just beyond edge of a small clearing. He showed me three perches which were often used by the birds (near TB1). A single male was on one perch. He has photographed these birds in motion pictures recently.

26 March 1957 I saw one dancing side to side on 15' high branch near SM3. Ramsey Yoder reported 4 ♂♂ at DF3. 1 on 27 March.

12 April 1957 Near TB1 I saw 2 males 50 yds. apart on horizontal open perches ($3/8$ " diam.) 15' up, no leaves near perches. No courtship dancing = merely resting. This is area where Mr. Hawes saw courtships.

21 April 1957 Near TB1 $\frac{1}{2}$ saw 2 at one with and two more 30 yds. beyond, all males. Displaying on perches 15' above ground & making short whirring sound (vertical spread tail) and hummingbird-like sounding flight between perches. Two males on one perch 10' apart. One had long horizontal tail low & slightly tilted toward other, which was not so. Displayed. One on perch 2 was twice joined by ♀. More sidestepping.

Pipra mentalis

21 April 1957

Burro Gouraud is. left.

toward here with tail high & chin near perch, rear quarter bowed
 ♀. ♀ left. Showed here to Bill Fasan, photographer, but he
 took no photos. Above about 9 a.m. about 3:30
 I returned to site and saw 2 displaying in area.

27 April 1957 Mr. TB1 saw 2 ♂♂ 10" apart. One suddenly
 quartering toward other, which retreated about 4 or 5 m. in 100' distance
 along trail. Still courting & displaying.

31 January 1957 P.G. Hovers notes. 3 snapping,
 buzzing, dancing, & using special perches near TB1.
 Later a fourth heard.

15 March 1957 all P.G. H. notes. all 4 still displaying.

21 March 1957 P.G. H. notes. Saw one ♂ near SM4,
 displaying (CBK also saw a few times here).

7 May 1957 I saw two 2 yards apart near TB1, males, on
 open perches 15 ft. up. Sue heard & saw them buzzing the
 unstretched wings, saw two males in "dance" on same perch.
 She says they call, a high short note or two followed by a long
 note, possibly sliding downward and/or diminishing.

^{28 May}
^{June 1957} Sue K. saw & heard them, at least 3, near TB1 at
 same site as before.

C.Koford

Myioodynastes maculatus

19 March 1957

Barro Colorado Is., Canal Zone

Nest of stick on ledge of sealed square window under peak at N. end of Chapman House. Two birds seen perched there morning, but no apparent midday activity.

23 March 1957. None seen there subsequently.

20 April 1957. One bird seen sitting in nest as if incubating.

Koford
1957

1

Terenotriccus erythrurus

25 February 1957

Barro Colorado Is., Canal Zone

Notes of Paul G. Hawes. Found nest with 2 white eggs. Nest ball-like, of tendrils, moss, rootlets, dead leaves, suspended by a stem of rootlets under overhanging branch of olive tree in very dark spot, directly beside clear pool. Nest 3½' above creek. Overall length 20". Entrance hole 1 ¾" diam.; could see bird's face in.

27 February 1957 P.G.H. notes. 3 eggs in nest. Bird flushed; rapidly flapped wings & tail every few sec.

16 March 1957 P.G.H. Eggs still unhatched

18 March 1957 P.G.H. Nest found pulled down, torn apart, left in water. No sign birds or eggshells (cooti?).

Hirundinidae

Iridoprocne albilineata

October 23, 1956 Nr. Barro Colorado Is., C. Z.

Saw two near Frigoles on & near stump sticking
10" out of water of lake.

Koford
1956
1957

Icteridae

Zarynchus wagleri

July 10, 1956

Barro Colorado Is., Canal Zone

Eugene Esemann pointed out to me that 6 nests in tall tree 50 yds. Nw of New Lab were being used by oropendulas. This apparently late date of record for young in nest.

July 25, 1956 No observations extensive but saw none at nests today (in Cecropia 100 yds N. of New Lab). One in Cecropia over Barbour House in evening. Later saw 2 nests entered.

August 2, 1956 Saw one enter nest, at other time, one perched on side nest.

August 11, 1956. None seen in area of this tree (the change in fruiting may have had effect on distribution.).

December 23, 1956. Rarely seen or heard lately, but this morning one called in Balsa S. of Chapman House, flew to Schizolobium, again called - bumbling sound.

January 4, 1957 about 7:30 a.m. heard near Balsa S. of Chapman House. 5 flew across to W. to an almendro, perched, & soon flew to N. 2 more flew direct from balsa to join them. Most seen since ^{early} August.

January 15, 1957. Heard 1:15 a.m. same 7 in tree made near Test Table Bldg. - see next p. - mid. Jan. to 1/15, not seen ext. rest of day.

22 January 1957. Saw + heard one at WNW 8 1/2. Mr. Lester says he saw one there during last few days. I heard a few at midday about 100 yds. N of Test Table Bldg.

23 January 1957. Mr. Densing said he thought one was trying to start nest in Schizolobium over Test Table Bldg. at end of branch with new foliage. Heard in area 100 yds. NW of kitchen during day. One calling from balsa S. of Chapman House about 4 p.m.

Zarhynchus wagleri

31 January 1957

Barro Colorado, Canal Zone

Six crossed over Tapawar House in evening, stopping in balsa tree. Lunging calls. ♂ much larger than ♀♀.

19 February 1957 In p.m. I saw one nest had been started in jacaranda over SE corner of Test Table Bldg. Seemingly all foundation work, about 12" of end of branch being wrapped in blackish fibers.

22 February 1957 In morning two nests at site, well started, the first above mentioned being about 1½ ft. long ♂, upper part including foundation wrapping around branch. This called No. 1, about 20' above level of peak roof of Test Table Bldg. A second nest located 15' east of this = No. 2. Bag somewhat shorter. ♀♀ seen to go into these nests carrying nesting material as late as 6 p.m.

Mr. Howes observed nest No. 1 on Feb. 20. He saw at least 4 other nests in early stages. Occasionally ♂ or ♀ gave loud alarm call and all birds down into low foliage under nest. Used light colored fibers or tendrils, horse hair like in size, up to rootlets with side roots. 9:39 & 9:44 a.m. one drove off giant cowbird visiting nest. Arrivals & departures industrious ♀ at No. 1 nest:

Arr. 9:00 :04 :07 :09 :14½ :16 :18½ :24 :29 :40 :49 :51¹⁰ :02
Dep. :02 :06 :08 :14 :15 :18 :21 :25 :31 :45 :50 :51½ :10

Carried tendrils, black material, green material, dark strips, rootlets. On 3 trips nothing visibly carried to nest.

Mr. Howes notes of February 21 (extract): Birds working at 6:10 a.m., 5 working, especially 2. Stop work midday, resumed working on 2 nests in p.m., & birds leave before dusk. Considerable robbing of nest material from absent bird. Battles when bird returned to nest while being robbed.



Zarhynchos unicolor

²²
23 February 1957 (extreme P.G.H. notes) Bayos Colorado (S., C. 2).
Mr. Hawes thinks 5 nests started but 3 poor and consist of
only a few strands. Other two nests progressing.

2 March 1957 The two nests in jacaranda about 2 feet
long, nearly opaque. Dr. Walter Birkhead photographed the birds
here a few days ago (26 Feb.). Now 4 more nests started, in
the adjacent Schizolobium, two to 11 ft & 2 to 1½ of the farthest
advanced nests in the jacaranda.

¹⁵
9 March 1957 The oropendola nests now number ¹³
over Test Table Bldg. - the original two over SE corner, in
^(+ a new foundation)
in Schizolobium jacaranda; ¹ over center of N. side of Bldg., 1 started 20' higher than
those over NE corner bldg. (possibly another starting adjacent), two more
about a ft. long (& another starting) 15' higher yet, at lower edge
of S. side of crown of tree top; plus group of 3 on E side of the
same Schizolobium ~~also~~ about halfway up. Three have only part
of foundation made, but birds working on nests, so some nests
starting at this late date. // Nest material consists in part of long
shreds of Ocopia bark pulled from near tips branches by
birds with bills.

16 March 1957 Saw 20 nests in the jacaranda and
Schizolobium over Test Table bldg.

23 March 1957 One of the nests had fallen down, & walt
had broken at base. Contained soft green dried grass in
nest. Given to Paul G. Hawes. // Mr. Hawes also found
on 21 March a nest 70 ft. above ground in Bombacopsis
to left of AVA 6.8. A few days later he saw this nest, then
by about 5 April it was gone, and he was seen to be
yds. away to left of it.

c. Koford
1957

Zarornichus wagleri

- 3 April 1957 - (beginning) Barro Colorado Is., 1957
Cragg's bldg. nests were still there but apparently deserted. I saw no birds on the bldg. when I left at 3 PM. Saw no nests in trees or bushes but no organization noted, nor other signs. The dogs ~~were~~ ^{had} been around but did not get the birds. Two nests pulled up over the next 2 hours.
- 20 April 1957 - (beginning) Found 10 nests hanging from 2 oregendales near nest. Just 30' off ground. Some 2 or 3 others seen but they did not come into view.
- 16 March 1957 P. G. Howes notes. Over Test Table Bldg. ♂ ♂ + ♀ ♀ spend long periods close together, ♀ ♀ matinées, ♂ ♂ with bills pointed skyward & matinées for long period followed by bending over shuddering and "exploding."
- 20 March 1957 One nest broke loose, hung upside down from adjacent nest as bottom woven in.
- 21 March 1957 A finished appearing nest in tree near AVA 6.
- 30 April 1957 Only ¹⁰ nests still hanging over Test Table Bldg.
- 4 May 1957 One of these nests (toward kitchen) may hold bird moulting, as one seen to leave it.
- 1 June 1957 No activity at nests near Test Table Bldg. I heard of several times near AVA 8.

Thraupidae

Tangara inornata

November 3, 1956

Barro Colorado Is., C. Z.

One died in mist net near Chapman House. 17 $\frac{1}{2}$ gm. ♀,
imm., skull 4/5 ossified. Several taken within last
week there & banded. Apparently all year. Feeding in groups
4± on large herbs near edge clearing.

November 14, 1956. Catching a few nearly every day
mist net out, low, near edge clearing near Peacock or
Chapman House.

16 January 1957. Still common in Eucalyptus near Kitchen.

© Koford

Thraupis episcopus

23 March 1957

One on nest in citrus tree next to ZMA house. No
birds here since some time previously (notes by P.G. Haven
or Harriet Burlehart?).



C Koford
1956

Trees & shrubs

July 3, 1956

B.C. Island, East Zone

Almondos in purple blossom now, a tree with many
cooking-sized red fruits 75 yds. NW of New Lab has
much we by parakeets, Zarapachín, Querula, & other
birds. Many woody fruits on ground. I collected some.
Balao Balao 50' S. of Chapman house blooming, & res-
ident (Rettmeyer) says has bloomed since January. Carl
Rettmeyer says almondos at Wheeler T. + in fruit about end
of March (he saw tapir & peccary there).

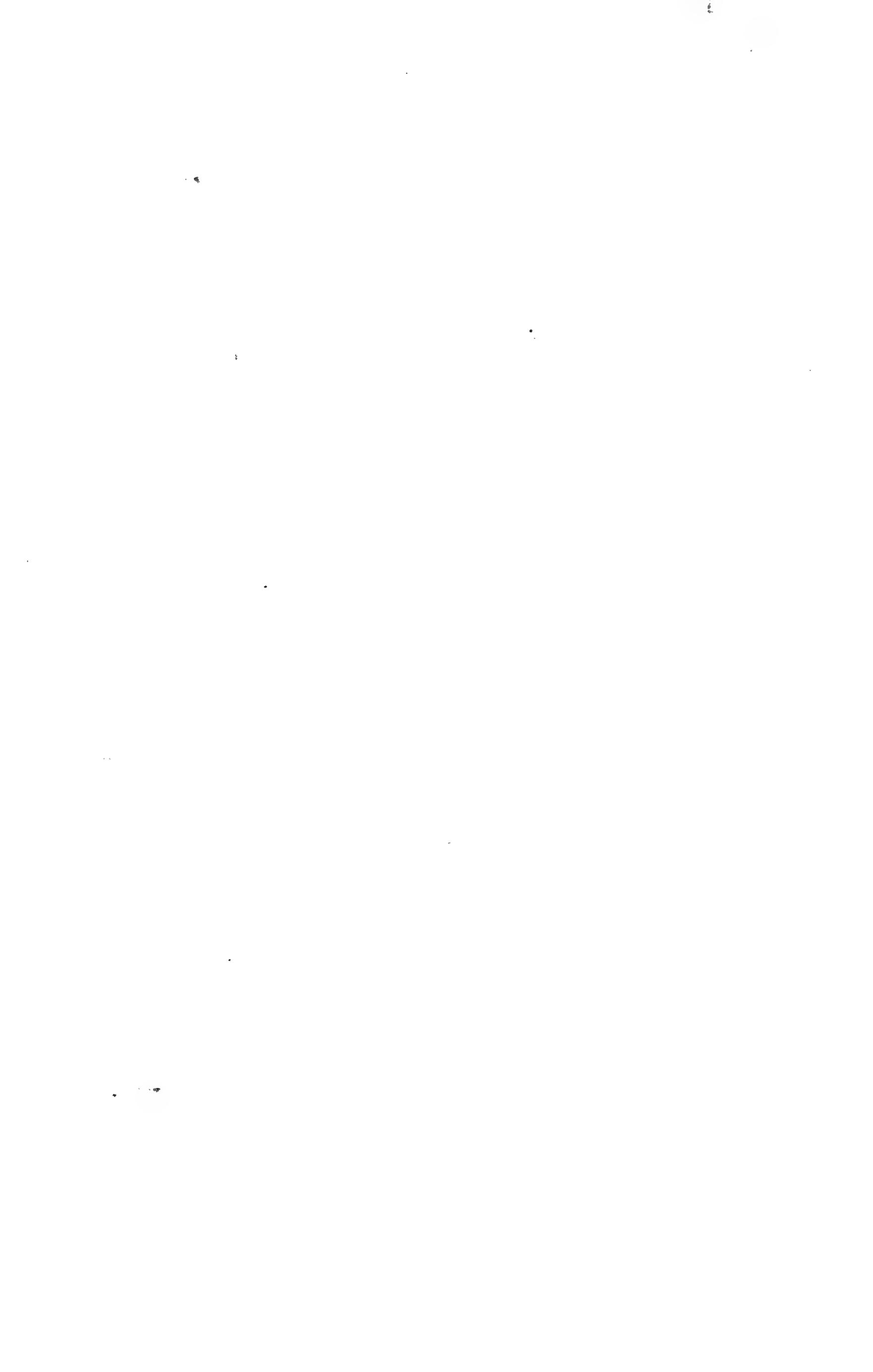
July 24, 1956. Today Walter Lindsay, agronomist of Balaoa,
visited & identified many trees for us. I tagged about 20
on Snider Molino trail with numbers (on copper). Possibly the
largest tree here are Ceiba rather than Bombacopsis. The
oropendola tree W. of New Lab probably Bombax barrigón. The
large tree 100 yds. E. of Old Lab & largest tree on island probably Ceiba
pentandra (spines on trunk), kapok tree.

September 1, 1956. Many fruits of "monkey plum" on ground
on Donato. Large seed, 1"; avoid, orange, taste like logan.
A skin & outer parts eaten on most fallen area. All Almondos
blossoms gone. Nothen in conspicuous blossom.

September 18, 1956. Jacaranda near cedar bridge. shedding
seeds from pods. Same afternoon, saw many on air and in trees.
Heliconias of several kinds in bloom.

October 2, 1956. A red flower like two bunches of
firecrackers now prominent on a few leaved shrub about
15' tall on Luty (near 1) and 4 MA 100 yds. from Tower.
Malay apple near pumphouse now has red flowers.

October 23, 1956. Malay apple flowers nearly gone. The



Trees & shrubs

C.Z.

October 23, 1956

Barro Colorado Island, a
firecrackers still prominent on 10' tall leafless
shrub, few branches, some spine, in dark woods.
No trees in blossom, but almond in fruit, & some
vines flowering (purple trumpets).

November 11, 1956. At several places in forest in dark areas a
sprinkly 10' tall shrub without leaves with bright long red flowers.
The Schizolobium tree over Bodkin House seems to be losing leaves now.

November 20, 1956 The Schizolobium in yellow flower. Many
fallen by Nov. 22. Conspicuous yellow in distance. The
Malay apple also has flowers (red) in one section.

December 5, 1956. The Schizolobium still in conspicuous
flower but losing flowers now. Many insects & small birds
at flowers. A squirrel cub was commonly seen in that tree.

Rather dry, clear, & windy today & yesterday. Start of dry season?

December 9, 1956. Most flowers of Schizolobium now gone. A
lilac-like purple flower in bloom on tree at edge clearing, & a
vine with pale orange petals and many stamens. The red flowered
Inga (?) shrub still conspicuous in forest. Wings on stems.

The big Bombacopsis s. of Bodkin's House has yellowing
leaves, & a Stenocarpus 100 yds. SE of it too. Drying up?

Near 5M! Hundreds of figs on ground, Alouatta feeding on
in trees, toucans prominent there too. Many immature
blossoms of balsa on tree near Chapman House.

December 12, 1956. Claudio Villagra helped me name some plants.

Seeds common on trails are Spondias "nigra"? apparently eaten
by bats. Red flowered shrub is Inga. yellow & white blossoms
(Many blooming now).

on tree are of Inga panamensis. Cluster of red flowers on spiny

C. Koford
1956
1957

3

Trees & Shrubs

December 12, 1956

Barro Colorado Is., Canal Zone

tall shrub = Erythrina panamensis. Still blooming at J 20.
all leaves & flowers gone from Schefflera near Test Table Bldg.
Bombacopsis has lost leaves.

December 23, 1956. The few colored flowers of compound (penicote)
leaved small tree still prominent. bud pods (1). Found near
short line on Orchid Is. (W. side). On east side Orchid Island
many Bombyx, one with two "panda puffs" already, others
with some leaves still. Exposed half bare - common on W. side
Orchid Is. Sternalia half leafless with yellowing leaves.
Big Tree on Van Tyne trail has lost all leaves & has many young
flower buds, but the one south of Donato steps has half leaves
still. Red flowered Inga still prominent in forest.

December 24, 1956. Pronounced first day of "verano" by Chidi
and Oscar Kidd - because wind N. rather than NE. 15 to 20
MPH, with strong waves & many whitecaps in midday. Andropogon
and other grasses with heads now.

January 2, 1957. In making circuit of island by boat noted
high proportion of half leafless larger trees. Flowers rare - the
lilac-like one near water still in bloom.

January 5, 1957. Many "shaving brushes" now being dropped by
Bombyx barrigone at many sites. Exposed with few leaves.
Bombacopsis bare. Red Inga still in flower. along canal
in The Cut, "gallito" (Erythrina) in bloom, & much ^{poro-poro} ^{poro-poro}
in yellow flower along Isambra - Pedro Miguel road.

January 9, 1957. Many "shaving brushes" of Bombyx and flowers
of "gallito" (Erythrina) in Isambra area.

January 10, 1957. The Big Tree on short + Van Tyne trail raining

Salientia - General

+ 22
August 21, 1956

Barro Colorado Isl., Canal Zone

Information from M. J. Fognette, Jr.

Bufo marinus - Large ♀ Wheeler 14, night. ^{♀ taken on} dock eve ^{Aug. 22.}

B. typhonius - very common along trails on ground.

Calling during light rain p.m. Aug. 22 nr. Allee Creek.
Larger here than in Pacific drainage C.Z.

Erythromops pustulosus - 1 or 2 heard calling
Old Lab. One seen Barbour 3 daytime Aug. 22

Leptodactylus pentadactylus - several heard calling
night near Old Lab, near Wheeler 9, nr. Armaur 8.

Eleutherodactylus laufoniformis - only frog seen along
allee Creek bed (rocky) near Old Lab. Red eyeshine.

C. diaistema - heard common night calling from tall
small trees. Whistle similar to Centrolene fleishmani,
but higher pitch.

Phyllobates flatator - common along TB trail daytime.

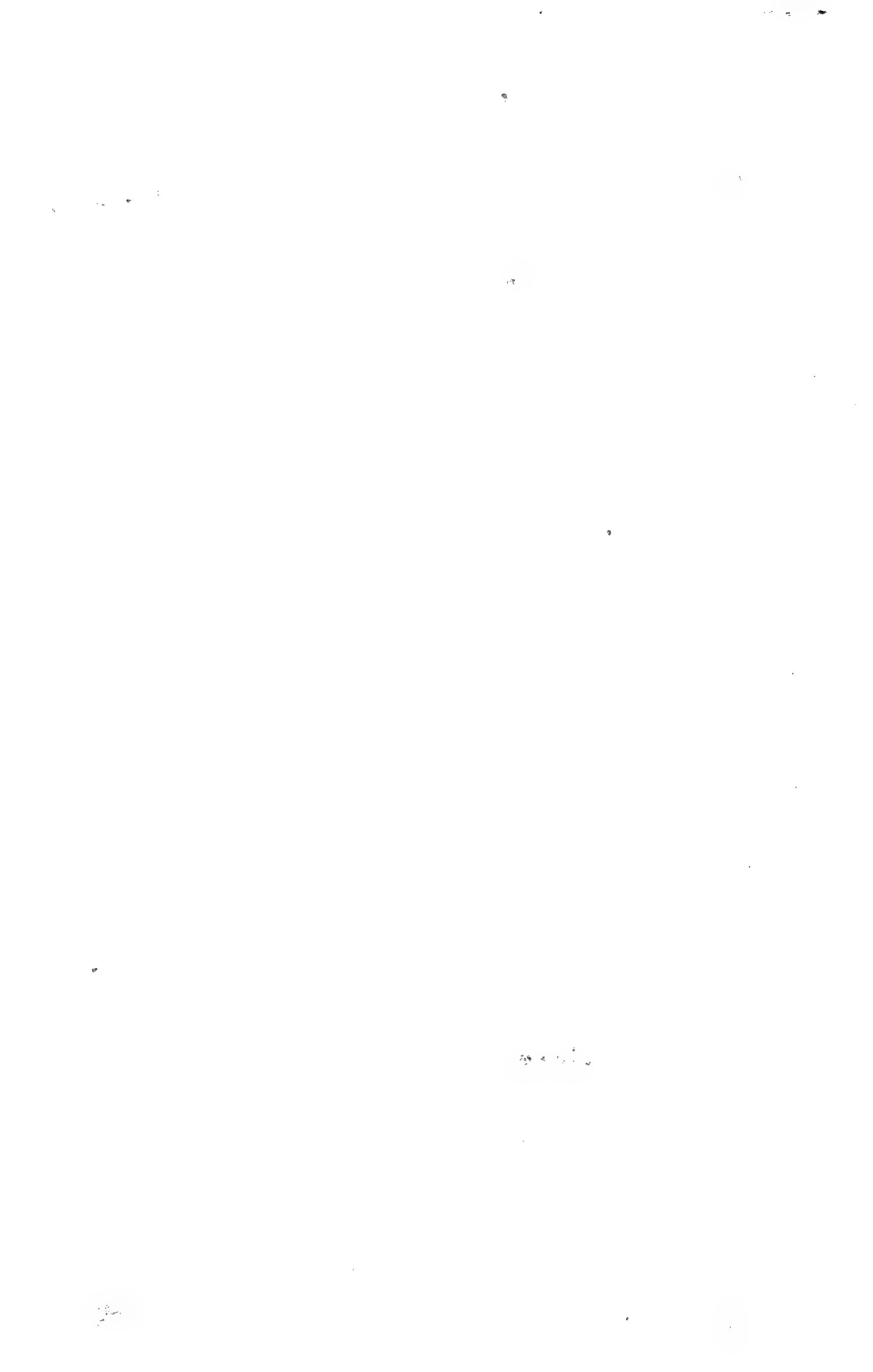
Hyla albomarginata - good chorus night along stream
near Armaur 8-9, in "Pita" thicket. Green with red web
between toes.

H. phaeota - seen calling near dock night.

H. phlebodes (prob. not underwoodi) - believe 1 or 2 heard
near Old Lab night.

Centrolene fleishmani - most common call, at least
near Old Lab, night. Call similar to E. diaistema. Egg
mass found on adjacent leaf. Isletatin mass containing
wiggling developing embryos larvae.

Bufo marinus - C-V 148mm. - removed RF toe 11X. Taken
8 p.m. boat landing. Released at Old Lab 8:15 p.m.



Recent notes

January 10, 1957. Large areas of land now
bare of vegetation. Land in hands, but many
numerous cut trees & stumps on ground. The big Bombax just
SE of Fremont's house has new leaves on cut stem. Did not return
to my knowledge. last saw a few weeks ago. I found 1/2 of
1952 tree fully developed & tall at last known. It has
been followed west from Bridge. starting to get new
leaves now. It was a common tree in the park but has
many red flowers. Red Inga still a lot of fruit now
in forest.

January 10, 1957. In bridge area just west of town
fully covered with new leaves. Solid fresh green 19 Jan.
19 January 1957. Bombax still dropping "mottas". Few
leaves on Hura. Croton fully covered with fresh leaves.
Inga blossoms (red) almost gone. No conspicuous shrub
or tree flowers.

23 January 1957 Crop. since last Wed. 1.45" from
black 4' diam. pan.

7 February 1957 Poco-coco fruits on trees along along PRR
track Balsas to Frijoles. Large Bombax fruits on orchids,
O, about 8" long. General aspect of forest top, many bare trees.

22 February 1957 Near Barbour Pt. three bright yellow
flowered trees, perhaps guayacan. Another seen across lake
near Frijoles. Many Aceiba fruits on trees, as near 5 M.L.
Few "mottas" left on Bombax. Large fruits on one near J²⁰
Kopak-like fuzz from fruits on balsa next to Chapman
House. Red Passiflora in bloom on vine in various parts
of forest. Palo Santo (L.), smooth bark, slim tree with
(= Triplaris)



Trees & Shrubs

22 February 1957

Barro Secreto W. L. Z.

6" long groups of pinkish flowers. Flowers with 5 petals
of about 1½" long. On *Slothia* the banana tree now in
flower & with all new leaves.

26 February 1957 ^{Guayacan - Mayocan} *Guayacan* blossom, & many flowers
on ground. Blush purple jacaranda also in blossom near A14
and J2 trails. Palo santo in full bloom too. Big tree at
AVA 9 has buds, apparently of flowers. Ceiba near
W.M.W. 2 has buds too on naked tree. Banana tree on
Slothia do. in flower & leaves are new. All sapote have
had new leaves for a few weeks, & some are in flower.
Pinkish white blossoms at top visited tree near Jaco - el
House. Some say its "noble." Guayacan & near Barroso
Trail
House have lost nearly all leaves now.

5 March 1957 The *Tuliparia* back of generator house now
in full bloom, pale pink, & took 2½ ft. photo. Most of
Triplaris now faded. Many of trees along W.
Bank of canal coming from Iximba. Guayacan blossom
is now apparently over on hill. One branch of blue
jacaranda over Table Rd. in flower, & same tree
in forest. Trails covered with dry leaves. Many small
buds on ceiba tree.

9 March 1957 *Tuliparia* behind generator house still in bloom,
& some others scattered in forest. Pale pink blossoms. All
guayacan blossoms gone. Blue jacaranda flowers still pre-
minent.

16 March 1957 Big tree at Van Tyne & now leafless. *Gustavia*
superba in blossom, flowers on leafless parts of branches.

Trees & Shrubs

16 March 1957

Barro Colorado Is., Canal Zone.

Gabbe (T. pentaphylla) in pink blossom, including big one 50 yds S. of Foreman's House. Still in bloom 27 March.

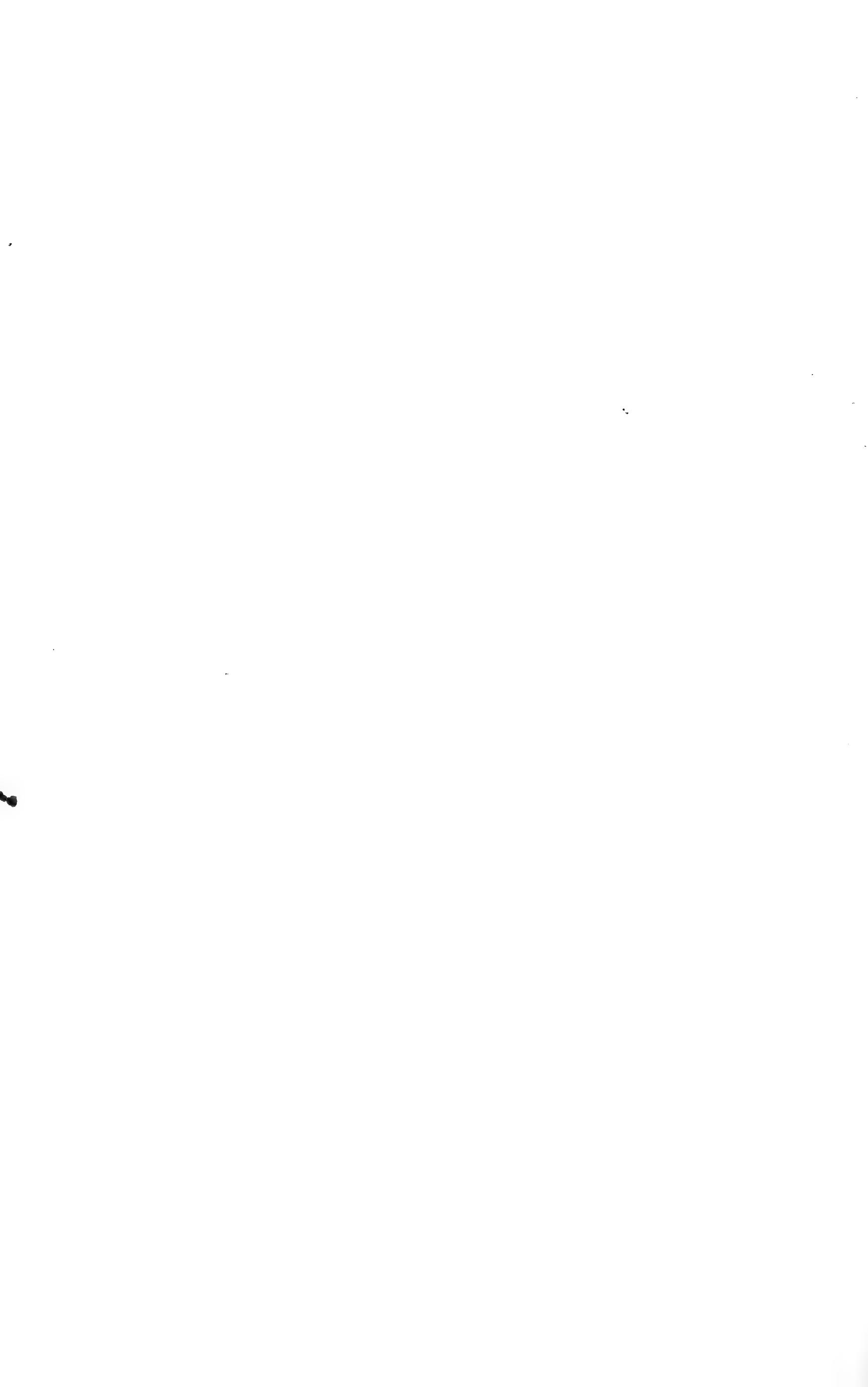
27 March 1957. Most Bustavia superba blossoms have fallen. A few faded Palo Santo (Triglochin) blossoms. One guayacán in bloom, near JZ3. Balsa shedding cotton. Bombax ceiba shedding leaves, & rare or flowers. Big tree at AIA well leafed, but one at AIA 9 with flower buds which are falling off before mature (as at van Tyne big tree much earlier).

5 April 1957 Driving across isthmus to Colon saw many cuipos with seeds (4 wings), red or yellow. Few deciduous trees without leaves in Ft. Sherman area, but many near Barroso & on Barro Colorado.

7 April 1957 Big ~~almond~~ Gabbe s. of Foreman's house still in bloom. Some jacaranda still in bloom on the land, and rarely a guayacán. Cuipo now with seeds on trees. Rarely a Bombax still with "natas"; most with fruits & dropping them. Many black palm fruits on trees.

12 April 1957 The tall noble s. of Foreman's House still in pink blossom. Fruits 4" diam. on membrillo near EETB1. No leaves on almondro or saint opposite generator house. A yellow flowering tree (Cocosea?) in bloom 100 yds. N. of Barker Pt. house.

16 April 1957 Gabbe ^{50 yds} N. of Chidi's house still in bloom. Bombacaria at VT 4 now well leafed out. This is longest dry season in Balboa since 1931 - scarcely any



C. Kotford
1957

Trees & shrubs

April 16, 1957

B.C.I.s., Canal Zone

rain Jan. 9 until 15 April, then .45 in/d (very little at B.C.I.). Some membrillo (Gustavia) fruits on trees now. Passiflora (red) still in bloom. Some black palm fruits have fallen. Many figs on ground under large lignum near WWB.

27 April 1957 Few flowers remain on big palm 50 yds. S. of Foreman's House. Deep yellow tree (Cassia?) in bloom on island and on nearby mainland. Some membrillo fruits double fist sized & have fallen.

4 May 1957 Only a few blossoms left on palm S. of Foreman's House. Some black palm fruits have fallen, & pecanies eating fleshy parts. Orange-yellow blossoming tree still prominent - one near Barber Pt. House, many near Bambusa. Forest floor covered with dry leaves. Some Gustavia fruits have fallen, & some eaten by vertebrates. Still no rain, and many many trees leafless.

7 May 1957 Some Bombax blossoms starting to leaf out. Panama tree on Slothia has covered pods & shed fruit.

²¹
24 May 1957 Little rain yet. A striking bright yellow flower on tree in bloom - guayacan like color, but compound compound. An orangish-yellow tree also prominently in bloom. Chichi is said he had never seen these trees bloom prominently in other years.

Rain by 25 May.

1 June 1957 Many fruits & nuts of Gustavia on ground, and many new leaves, but at WWB to 4 several blossoming profusely still. Almendro still leafless.

Insects - General

July 4, 1956

BCI, Canal Zone

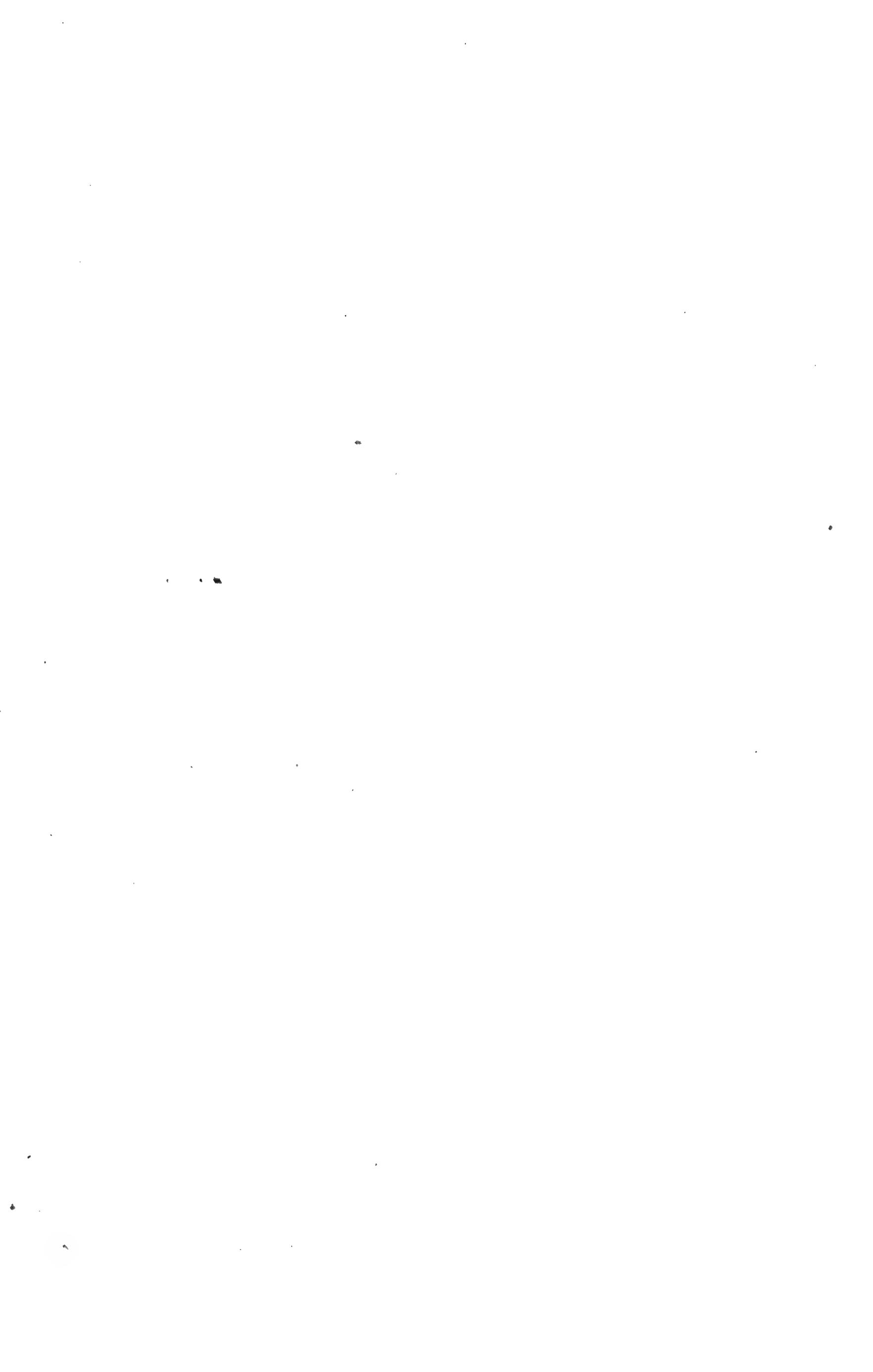
Carl W Rittermeyer here studying associates of army ants. Formerly worked here with Schneiders. Ant queens have beetles & mites on them. He puts light out at night by white wall or cloth & many different moths & other insects there in morning. He said ^{saw} took a "tailed moth once (= Copestylum?). I saw peanut-head fulgorid on one wall. Over army ants are many flies size of house flies of genus Calliphora. He thinks there may lay eggs on rocks disturbed by ants.

September 22, 1956. A group of army ants riding at N. side kitchen, spreading walls out to no-pasture, went running down rear corner with a few on ground. In late noon a group riding near wall at N. side kitchen ran away, about a quart of them on ground. They were no longer nest (Pheidole), & seemed to be carrying wings because they "flew".

December 8, 1956. Saw two of the large blue-tipped-winged damsel flies flying together about 4 ft apart for 1+ minutes if one pursuing other. This first time I have noted such association. Wings colors differed as if ♂ & ♀.

December 22, 1956. Dr. Crowley had lights out at night trying to get long Loya.

January 10, 1957. Between buttresses off fig at DC 2 $\frac{3}{4}$, 100± moths perched within 3 ft. ground. Similar sp. near N. side trail near TB 3 (?). Eye on wing gray moth. W. Lundy says there always at site.



turtle

July 29, 1956

B.C. Island, Canal Zone

with Carl Lettermeyer marked one by cutting notch edge shell,
about 6" long shell. 50 yds. NW of New Lab.

October 3, 1956.

September Mrs. Charles Gregoire found one with
pliable shell $2\frac{3}{4}$ " long on TB trail near 20. I cut
notch in a posterior plate $\text{+ } \text{D}^R$ & kept in aquarium.
Two found in palm rubbish near tower, about 3"
long shells & these also notched. One D^R , the other
then D^R extra plate.

November 10, 1956. One soft shelled 3" long on trail near bent agave.

December 22, 1956. One soft shelled 3" long on road nr. JVT 1.

Caiman Fuscus

August 29, 1956

B.C. Island, C.Z.

In cayques with family shortly after dark, looking along shore with headlamp, saw one about 3 ft. long, & another about 18" long. Red eyeshine very bright. Larger allowed approach to 6 ft. before fleeing.

September 1, 1956. Saw 2 near shore in evening, both about 1½ ft. long. One lying near mouth of Nutty Creek. Found big eyeshine as before.

September 8, 1956 Fausto Bocanegra says he sometimes has seen one about 6 ft. long swimming across area 100 yds. NE dock.

October 7, 1956. In making trips around island saw one about 6 ft. long near Bang's house, and another about 5 feet long in water near Faulkner's house.

November 4, 1956. Brought a small one from Panama, taken in Madden Lake area, probably & cleaned it - rear foot. Clipped second toe of fore & hind foot, right side (+ 11 R.F.)
9" nose to rear of hind leg, + tail 9" (19" total length). (+ 11 R.H.).

Salicata - Gen/

August 22, 1956

A B.C. Island, C.Z.

Another large Bufs m. worked at Kitchen; FR 1171 in sec.September 8, 1956 Bufs typhonius remains commonest toad or frog seen long trails. Nearly always seen ~~as~~ one in half hour walk, with general observation, not looking for toads.

November 3, 1956. Saw one of the 1 1/2 " long brown frogs with green or turquoise spots on ventral surface of big toes on Van Tuyl's Trail. Found also near side of St. John's Bank Bldg. & near creek bed of Little Stream near foot.

January 5, 1957. Saw one 1 1/4 " long on 52nd A/A trail near S.

+ March 1957 A moderately large Bufs was seen on dock of boathouse at 7 p.m. On trail frogs & toads rare.

Herpes - General
~~Trees & Shrubs~~

5 March 1957

Barro Colorado Island, C.Z.

These translucent white, with equatorial band dark.
A few atop ground in loose soil.

17 March 1957 Bocanegra found a large turtle
with shell about a foot long (he demonstrated) on
beach near bathhouse, laying pingpong ball sized
eggs in pit in sand.

30 March 1957 At A.V.A. a turtle about 6" long
with 2 ticks on a hind leg and about 5 on shell.
Notch in carapace over head 3, apparently a
natural break.

27 April 1957 George Lee reported groups several small
Iguana at s. end of Slothia Island.

Herps - General

July 19, 1956

B C Island, Canal Zone.

about 9 p.m. found Bufo near New Lab in grass & preserved it in formalin 9:1 (+ Na bimac).

August 22, 1956. John Fugitt visited looking
for tree frogs. He recorded Hyla elongata
when descended by Dunn.^{voice of}

August 29, 1956. Evening with light saw 2 Caiman
near shore within $\frac{1}{4}$ mile dock. Also saw 2 evening of
Sept. 1. all small.

September 22, 1956. Took a tick from top edge of shell of
a turtle or bird (4" long shell). The shell also had red patches
of chrysos on bird neck.

December 8, 1956. During day saw 2 Bufo typhonius about $\frac{3}{4}$ "
long & 2 Anolis (?) about 1" long. These first young of these
species noted.

January 8, 1957. At 2nd at foot, low sand embankment coral
snake about 3" long. ^{16 mm?} Saw Black Vulture, qz. I
saw another one near Clayton 17 on Feb. 3, 1957.

1 February 1957 Eggs of iguana with small embryos
found dug out of hole in Stoltzia Is. Next morning I
saw several Cathartes at the spot, possibly eating eggs.
Do they dig them up? Feed when hatched?

23 February 1957 The boys took 3 iguanas from Stoltzia
Is. I found translucent white eggs twice size of chicken
^(= Caiman) eggs there, some lying atop ground, at mouth burrow in loose bare
soil. Many tracks. Black vultures seen in trees on this island
daily.

4 March 1957 apparent alligator eggs on Stoltzia Island.



Koford, C.B.

Journal

1963

Peru

Koford

Peru trip - Summer 1963

8 May 1963.

New York, N.Y.

Confined with Fairfield Osborn, president N.Y. Zool. Soc., and his assistant, George Merck, at Rockefeller Center office. Met Peter Gould, Brooks Bachelder, who are principal members expedition. They expect to leave early June, fly plane to Peru, & set up base at Luisiana on Apurimac River. Area to be explored: Cordillera Vilcabamba, lat $12^{\circ} 5'$, $\lambda 72\frac{1}{2}^{\circ}$ W., between Chumbambra and Apurimac rivers.. altitude to over 14000 ft. At N. tip area, an arc of 18 lakes. Expect to drop by parachute, set up landing strips. (Much correspondence followed - Merck, Bachelder).

9 July 1963. Arrived Lima, Peru. Left Puerto Rico night of July 7 via PAA flight 295, via Curaçao to Panama. Stayed at Twali Hotel 8 July, and visited C2BA headquarters, and Borges Memorial Lab. Balindo and Milley now active in collection and identification of Panama birds. In Lima, took direct to Casa Humboldt (Francisco Paula Camino 358), pension and home of Koepsches. Dr. H.-W. K. will accompany me to Luisiana (Apurimac River) on July 13.

10-12 July, 1963

Lima, Peru

Consulted Jorge Milley, Universal Travels, liaison man of expedition. Radio communication has been poor thru SATCO (airline). Started job of getting shotgun, ammo (Rebora Knob), and license (337 Av. España). With letter from game dept., and help of Augustin Jordan in the Prefectura, secured necessary papers & obtained gun. U.S. ammo available, #10 to 12 ga., & also components, shot to #10, and .22 shot shells. Food good in tea rooms, supermarkets, pizzerias, & elsewhere.

13 July 1963. Wth Koepsche, departed via SATCO at

Journal

13 July 1963

To Luisiana, Apurimac R., Peru

8 a.m. for Ayacucho. Flight over fog and ocean to S., then E. at 5300 meters altitude. Saw dry coast, more shrubs higher, then stone-wall lined fields on slopes. Some lakes in rock + grassland. Clouds over ^{summit} ~~saint~~ but good view of two nevados to north. Then clear over Rio Mantaro and descended to dry Ayacucho broad valley. Much maguey, spiny bushes, pepper trees. Widely spaced bushes and small trees. Dry beat-up aspect. A large wheat field near airstrip; about 15 boys cut wheat with sickles ($155./\text{day} = \$60$). On ground, igneous lava rocks. Cublets under rocks. A 6" lizard. A man washing net for trout in a nearby lake. Near airport some goats, but no other stock seen. Dusty, dry. A mayordomo said rain Dec. - April. Cloudy over mts. to east. We debarked from plane about 0925, then waited for another plane. Waited all day - it arrived 5 p.m., + not to go until tomorrow. Near airstrip, maguey, prickly pear cactus, thorny bushes. I saw sparrow hawk, dove.

14 July 1963.

To Luisiana, Depto. Cuzco, Peru.

Plane left about 10 a.m. DC-3 cargo type. Up river, then over mountains to Apurimac Valley. Stopped briefly at Santa Teresita. Then upstream to Luisiana. Forested, with yucca, maize, fields. Indian fishtraps along river. Tall thatched roofed houses. Arapendolas nesting. Parrots, ant birds, caracaras, and usual tropical forest birds. Fish traps along Apurimac River; crudely built of sticks, cane; remains barbasco, shredded, near pools at many points. In evening I set 15^{snare} traps near river bank. Shot a nightjar in daylight, + a tyrannid. In evening shot + consumed fish by river, among sand + rocks; different species, apparently.

Koford

3

Journal
Peru 1963

15 July 1963.

Lurisiana, Apurimac R., 1900 ft., PERU

7 traps along tops edge cut bank edge river bed yield 3 mice.

2019. ♂ 2020. Discarded similar ♂, 22 gm., test. 4 mm. long.

Journal

27 July 1963

to Ayacucho, Peru.

Had 5 blts, 2066-2070, in mesh torn up not hung near piano, at edge grassy clearing. Yesterday Hoepske shot a small Roma; dark color. About 10 a.m. I left on ATCO plane from Lurigancho for Ayacucho (115 miles), with Jaeger Int'l. Flew down Apurimac to jct. with Mantaro R., then up Mantaro to Ayacucho. Came up to cool off, dry out, ship specimens, and collect in high country, and get rid of persistent diarrhea. Saturday.

28 July 1963. About 4 p.m. left hotel, climbed hill to NW, & set 21 snap traps next to rocks, rock walls, in area short-grass grass, scattered bushes of pepper, moquey, prickly pear, others. Old rock walls & stone piles. 29 July 1963. Upper 14 traps held 4 mice (nos. 2071-74), one tail. Bait-walnut. Saw sparrow hawk, marsh hawk, over slopes. During day plane arrived from Lurigancho w. Dick Tompkins & Pepe Parodi. They departed late afternoon. Pepe offered me use of his pickup truck for trips to Tambo.

30 July 1963. With truck, driver, M. Becon (?) & daughter, drove to Tambo, 3 hr. drive. First thru low country of soft rock, caves, springs, cacti, & SW desert appearance. Then up to Pununa, small mud town. Higher, to short grass pampa where battle Ayacucho fought. Brushy higher, and finally near Apacheta (14000 ft) green pampa, a lake, clear streams, alpacas, llamas. Much beat up by livestock, however. Jagged edges dark rocks. No yarata seen. Lapwings, some birds. Then down to Tambo about 11000 ft., an Indian town. Bull teasing in a corral today; some sort of holiday. We left Pp. negra, Antonea, & drove on. Up & down low in valley. River, clear. Trees, shrubs, birds. Charcar on slopes. Finally up to pass of Tapuna, where road started to descend. I camped there. Put out 35 traps near rocks, under huancacha bushes. Many burrows in moss; droppings. Pastoral Indians (Quechua), in thatched stone huts, growing potatoes; horses, cattle, sheep, but no llamas.



Journal

30 July 1963

Tapuna Pass, Dept. Ayacucho, Peru.

or alpacas. No trees - tuco-tucos or guinea pigs. Under bushes in road, many luminous 1"-2" diam., and large mouse sized droppings, [but traps put there caught 0]. Included 2 blind set no. 0 steel traps. ~~Set~~

Cold breeze from NW in evening, fog forming at crest. Calm & clear at night, but ice condensed on sleeping bag.

31 July 1963. Traps held only, Phyllotis pictus, Akodon boliviensis. Put up skins. Phyllotis partly eaten by another mouse (?). Saw 2 condors, black vulture. Sparrow hawk. Kestrel, mostly white underneath, black tips wings, hovering over rocks & grass. Boys said vicuñas & deer in rocky hills at higher level. Most grass brown; green near streams. About 1130, Cis Aman-^{aram-}baré arrived (ayacucho student biologist). We walked about 1 mile from pass to NW, toward Apurimac R., & stopped at Querbara stone house. They gave us chicha and potato-like vegetable to eat; not bad. We put out 30 traps, some by house, stream, rock wall, in Lemmata shrubs, on and near huge boulders high on hill. Completed about 4.30 p.m. At 5 p.m. (after sunset), a trap at house took ^{Neotomys} ~~an~~ Akodon boliviensis? Two dogs nosed some traps near house evening. No bats seen or night birds heard. Pollywogs in stream. Many Cinclodes, & Zonotrichia capensis, plus other small birds. Boiled amaranth for dinner, & next potatoe for dinner. Cloudy evening. Clear & cold by midnight.

1 August 1963. Water frozen. Breeze down valley. Traps near stream by house took 2 long-tailed mice. Phyllotis by a rock wall on dry slope. Clydonota by boulder high on hill. No catch among bushes on hill, tho much sign. Bait was endosperm of soaked corn. Saw Tundu, and Patagona gigas in yard. Put up specimens. Corn, warmed dry in sun for breakfast. Cis left for Tambó last eve, to return first thing in morning. Not here by 12:15. I walked to Tapuna Pass & waited for car. None by 2 p.m.,

6

Journal.

1 August 1963

Nr. Tapuna, Dpt. Ayacucho, Peru

so started walking NW, toward Yaravante. Steep rocky slopes to E. of pass faintly green in bottom wash. Jagged ridge; much brush grass + bushes ^{on slopes} at pass, barometer 18.95." Left pass 2 p.m. Hiked down road to NW. saw a snake, Patagona, near stream at 1200'. Many ~~solitario~~ dogs, indecisive, along road and trail (not across most road switchbacks). About 4:30 stopped on NE slope of steep canyon, where scatter forest extended up into grass-shrub area. Set 30 traps in partly opened 15' fern-moss woods. Estimated 3 mi. N of Tapuna Pass, 10700' (20.7"). Many small birds, big black Turdus, hummingbirds. Overcast evening, clearing. Cold, but probably over 40° minimum. No wind night.

2 August 1963. Traps held 3 mins. Phyllotis in open area, bare tree, on rocks. The "Akodon" in dark moss-fern woods. Apparently this is Rio Pipri drainage. Grassland, probably largely man-caused, started 200 m. above my campsite. At 10 a.m. I started walking down road. About noon, boarded a pickup truck bound for Teresita. There were 16 (20? 3 children) in back, plus quarter of beef, boxes & odds, cans beer, & nice flour bags. Long line of people. Group included 4 Swiss (2 or 3, 2 ♀♀) from a school in Lima. Yaravante seemed to be a single shed on exposed slope. Calcaanta consisted of 30+ square low houses or sheds crammed together, sides of horizontal sticks, roofs of corrug. sheet metal, set down with rocks. Mostly cleared ground here. Alt. 7300± ft. Dirty, unattractive. I saw a pet monkey (C. apella?) here. Then on to Ayra, 5500 ft., where buildings were permanent. Civil guard station here. Many ranger (5 total). A short dist. below Calcaanta was apparent bkgnd. of the road builders. U.S. aid + civil companies involved. Fine clear rushing stream about 30' wide in canyon bottom. From here on construction in progress. Many delays for bulldozers, trucks. Small concrete bridges + culverts being made. Hundreds of laborers. Many ~~big~~ ^{big} piles of fire, even in trees. Everywhere steep slopes + interesting

Journal

2 August 1963

Río Apurimac, Dpt. Ayacucho, Peru.

valley, so no view across Apurimac possible. Rough riding in truck, & all cargo badly mashed. Frequent stops to deliver parcels, beer, sell newspapers, eggs, bread. Drop anchor at ayra. Macana, panca, later, when could see across Apurimac. Reached edge river opposite Tercito about 4:15 p.m. Crossed on small balsa raft (2 sols each). My fare 40 sols (= \$1.50). From Huanta, the bus paid 70, for 12½ hr. ride. At Tercito, no radio commun. with Lurinara, so stayed overnight. This is part of La Union, a group of haciendas. A large dormitory room and rusty kitchen available. Heard Caprimulgus edge airstrip in evening. Slept at edge strip. No insects at night. Nearly full moon.

3 August 1963. alto-cumulus with light breeze, 0800. I waited for plane to go to Lurinara (4 hrs. fast bike).

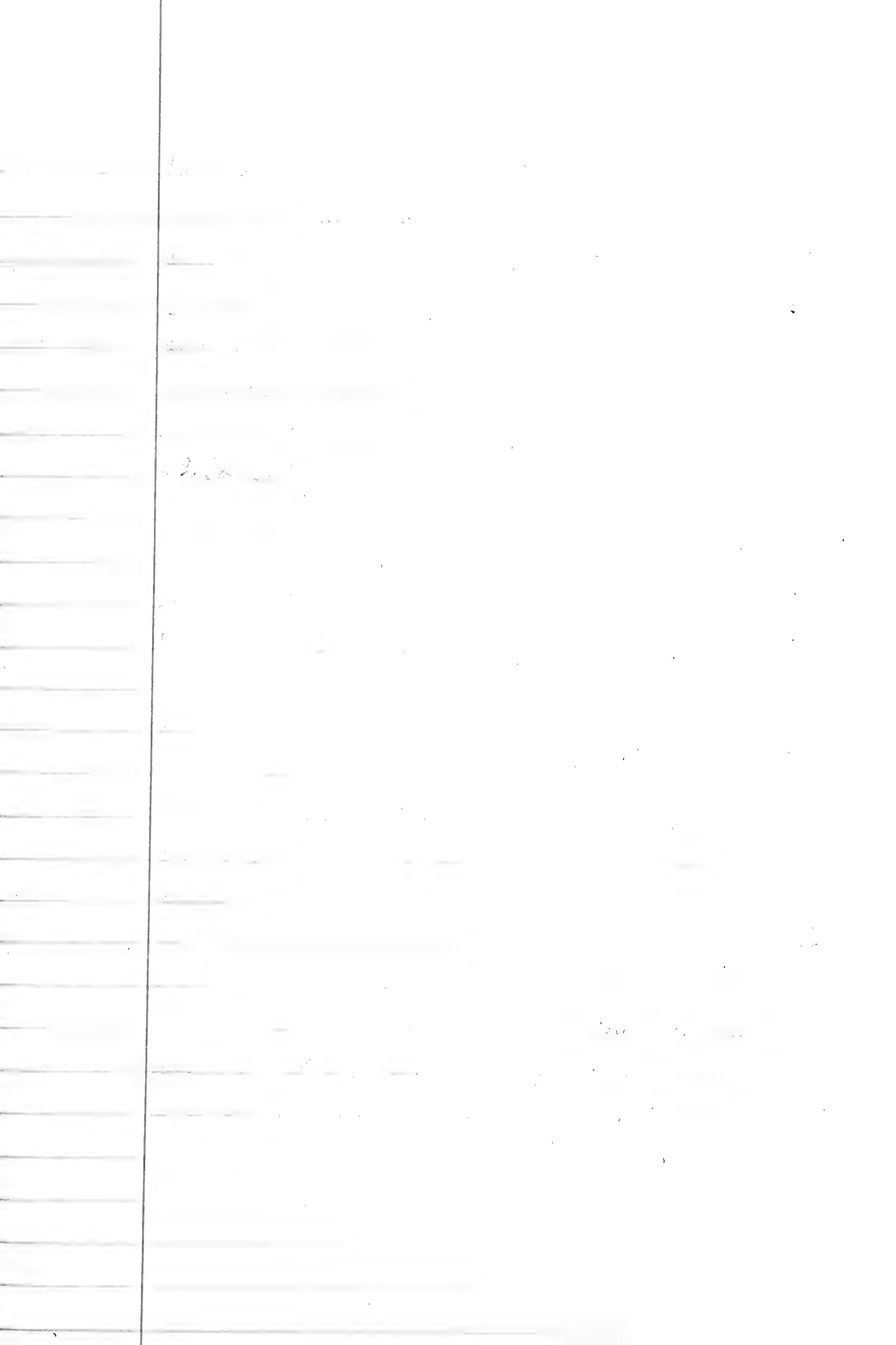
(Camp at head E. branch of Mantaro river (in k. down?))

to walk N. to higher ground of lake area

10 August 1963. Supposedly their walk starts today. Shotgun
labels, formalin, ^{a few} went in traps, went in with Joanne & Lake. Hope
to "mouse off" specimens out of a jar nearby. Some of my
cars to go. FT - time 1500

W. J. Johnson, Jr., 1950

longer than the first.





Koford

Peru 1963

1963

- July 13 Ayacucho - airport. (1) toward Ayacucho (pepper tree). 2 ~~to~~ boys ^{at} to airport. (3)(4) Boys cut wheat with sickles. (5) Pepper tree + hills W. of Ayacucho. (6)
- July 14 (7) Santa Teresita, storehouse, from plane on ground.
(8)



Koford, C. B.

Journal

1965 - 1966

Primate Studies

Japan

India

Kenya

Uganda

Thailand

Australia

Journal - Japan 1965

4 June 1965. Departed San Juan, P.R., for New York. Lv. 15:30.

15 June, via TWA to San Francisco, TWA, departing 19:15.

16 June, conferred with K.F. Meyer at Hooper Foundation, San Francisco, concerning devel. monkey colonies on Samoa. He thought the Confined w. armed ^{sold} ~~spud~~ at Univ. Calif. Forestry. idea impractical, in economic aspect. Visited Dr. S. Leopold at MVZ.

17 June, I visited Dr. Leon Schmidt at Davis, and saw construction in progress for the primate center. He also thought the Samoa project impractical. Visited Dr. R. Rudd, W. Hamilton.

18 June, helicopter Berkeley to S.F. Then PAA fl. 1, lv. 0900, to Honolulu.

19 June, visited Dr. John Hendrickson, E-W Center of Univ. Hawaii.

20 June, 12:30, departed on PAA JAL for Tokyo. Arrived ^{15:45} 3+,

21 June and was met by K. Yoshiba and S. Aguma. At Akasaka Prince hotel met C. Rogel, and all conferred. Aguma recently one month at Shimotsita; he said Kudomari band about 15, w. 6 adult ♀♀, of which 5 have had infants, starting April. He had photos taken within 5-10 meters range. Yoshiba said 26 already born at Takasaki, & over 1000 total. Aguma said monkeys in region of Inland Sea breed early, for no obvious reason. New vegetation now started at Shimotsita, & photos show some with crown molting. Yoshiba says Isogusan usually earliest ^{young}. Overcast, rainy, muggy in Tokyos.

22 June 1965. Visited NSF office & met O'Connell, Arvey, others.

No cash from Delta yet; sent cable requesting. Bought transport tickets, shopped, discussed project w. Aguma & Yoshiba. Letter departed for Monkey Center. Aguma, Rogel, & I boarded train for Demori at 6:30 p.m.; practically new sleepers.

Journal

23 June 1965

N. Honshu, Japan

Light at 4 a.m. Rice fields flooded, wooded hill, apple tree, haystacks. Deciduous trees and planted (?) conifers. A few crows. Arrived Tomori about 6 a.m. Most buildings wooden + low; fish, lumber, + port town. Ships carry trains to Hakodate. Walked to boat area, where ~~large~~ small dead boat (100') took us to Wakinosawa, on Shiretoko peninsula, a distance of about $2\frac{1}{2}$ hours. Sea clear + fairly calm today. At Wakinosawa, many drying squid or liver + mats. Several small stores with hardware, groceries, clothing; about like Playa Hermosa. Azuma introduced us to the mayor, Yamazaki. We left about 1:30 on small boat for Kusodomari. Shoreline of tuff cliffs w. caves + pockets. Shoreline road had gap of about 1 km. shortly before reaching Kusodomari. Few sea birds; occasional puffin, gull, or albatross, but a fishing boat (^{Circus?} Circa?) fairly common along shoreline. K. a small fishing village, w. no store, a few dozen wooden houses. Now dipping in hot water + then drying small fish, about 3"; + drying spread on mats. Many women working. Azuma said nearly all 20 to 50 go to Tokyo to work in summer, so not here now. Mayor of Wakinos., + others, said a lone monkey came to hill at edge town + stayed several hours on June 16, and that people fed him; apparently none seen there before; rare event. Head man Kusod. - Tomijiro Yamada. Store owner, Wakinos. - Schinjirō Kawaguchi. We left Kusod. 1:30 and walked to next valley N., along rock seashore, and up canyon. A few crops lower part, but no people live there. Visited monkey feeding area, saw several, walked to higher level, + returned. Saw droppings of serow (?) in shady forest. Stayed night in Kusodomari, in home of head man.

Journal

24 June 1965.

N. Honshu, Japan

Boat (fisherman) to Wakinasawa, leaving 7 a.m. Then boat at 8:05 to Ominto R.R. sta. (arr. 10 a.m.). Missed train to Asomi, thinking we were to take another bus. Swallows nesting in station cover. Town close to foot Mt. Osoke, heavily wooded w. lower slopes cut clean in many areas. (Rain last night at Kusod., + overcast morning.).
 * P. _{insert}

25 June 1965. No word from Azuma, so took bus excursion to Lake Tawada (210 yen, 2 1/2 hrs., w. commentary). Vegetation mixed tree, thick green, few flowers. Pink azaleas in flower. Some snow at higher levels, as on Hakkaido. Streams, small waterfalls, basalt-like rocks. A few hot spring hotels (onsen). Arrived shore Lake T. about 10 a.m. Took boat on beautiful shoreline ride around peninsula to resort town of of Jasumiya, where dozens small boats for rent, five mins. Tall ^{Cryptomeria} ~~Fragrans~~, about 30' dbh, in small redwood-like stands. High rough-faced cliffs around lake, with clinging bushes + pines - like Japanese sprouts. Returned by bus to Suhaya. Phone from Azuma, asking us to come to Asomi, so we returned by bus (about 1 hr.). Met Azuma and Masao Otake, + all stayed at inn (Sei Yu So)

on NE side of town. We go to Tsugara tomorrow.

* June 24 addenda. Took next train via Nobeji to Asomi, taxi to Sakuya Onsen, a large hot spring hotel in ski area. Took mixed sex hot baths in mineral water. Pleasantly warm down, but many people.

26 June 1965. Took 0810 train for Miomaya, on E. side Tsugara Pen. Thru rice fields, heavily wooded hills to W. Much more prosperous than Wakinasawa area, + water calm (protected). We went to the forestry station and met the chief there, + Azuma took talk along with him.

insert above ↑

Journal

26 June 1965 (Sat.)

Tsugaru Penin., N. Honshu, Japan.

Monkeys seen principally in winter, when descend from broadleaf zone into *Thujopsis* (hiba) zone. ^{Hiba} Hiba is main tree mentioned here. We went by truck $\frac{1}{2}$ hr. inland to Masukawa For. Exp. Sta., a 2 story lodging near stream in bottom of canyon, in ~~unoccupied~~ zone forest, much cut over, but beautiful green aspens, clear water, broken rocks. Fine place to stay. Arr. 2:10 p.m. & took orientation walk. Many birds low in canyon; cuckoo (?) heard. / Azuma says monkeys shy here; seen at $\frac{1}{2}$ km. or more. Also about 100 serow (kamōshika) thought to be in region, & many badgers, raccoons. Tomorrow we go with guide up ridge to look for monkeys, w. Azuma, Otaki, Nagel. / Forestry people have detailed vegetation maps; monkeys almost restricted to the Fagus-acee assoc., above level conifers.

27 June 1965. Left station 0735, with guide. Calm, clear. Up Mishinomata main stream, then cross country up slopes & cross bed, through almost continuous bamboo thickets (3-7' high) to top of ridge, which we reached about 1200. Off above *Thujopsis* area, mostly beech (Fagus) trees, w. occasional acee or other tree, and stop ridge considerable ^{bird} No sign monkey track or feeding, but apparent serow (Capricornis) droppings, fresh, one site. We looked across to NE at Mt. Masukawa, which had treeless areas of low bamboo near summit. Some other high peaks also had bald spots of a few acres (wind?). We descended ridge to canyon bottom, then to E. and N. around base of Mt. Ho Masukawa. The guide told us where he had seen, or heard, of monkeys. He had been working in area 20 years and said he had seen monkeys about 100 times. He seemed to know country, but trails very poor & not kept up. We arrived back at station about 8:30 p.m., after walking at least

Journal

27 June 1965.

Masukawa, Aomori Pref., Japan.

10 miles, much of it through underground without trails. From other people Azuma heard tales of sightings in Thelypteris zone in summer, including instance about 10 ^{days} before in canyon bottom about a mile from the station, where mother w. baby seen with others + rather tame. / Mt. H Masukawa rounded, forested, 714 meters, m. lat. $41^{\circ}08'N.$, $\Delta 140^{\circ}17'E.$ / We row down track, probably serow, + browsed bushes, prob. by same.

28 June 1965. Windy, overcast. Left station about 9 a.m. by truck for Masukawa. Bus at 10 a.m. to N. toward Cape Tappi. Renew road through wooden fishing villages; boats, nets, drying squid. 10:50, bus terminated due to construction ahead. We walked to next town + chartered fishing boat around Cape + s. to Horonai, a single family village. Water clear, cold. Ducks. About 40 min. on 22' diesel fresh boat. This E. coast low lava cliffs backed by bare rounded hills, w. stunted trees close above - like Calif. coast s. of San Francisco; the tiger lilies looked like poppies from distance. Brodiaea, hepatic a retch. / Based at fisherman's home (no roads here). Left about 1 p.m., walked N. 1 mile, then up stream valley of Horonai. Logging Thelypteris there, + large areas slopes with old stumps. Cut areas w. several erosion slides + no tree reproduction. Azuma talked with loggers + forest men; no monkeys now (logging since 1957), tho one report far up canyon (lost winter?); about 8 km. from Mt. Masukawa. As other places, Dentrichia in flower, + strings flowers hanging from walnuts. I know reported recently to cross flt. Horonai stream, + to be seen often in fall on hills near shore. / Someone else told SA that monkeys sometimes (formerly) on first ridge from sea.

Journal

29 June 1965.

To Aomori, N. Honshu, Japan.

Stratus clouds. 12⁺ boats out fishing nearby. Departed Horonai settlement 0830 and walked trail + building road to Cape Tappi. Then on dirt road to s. to end bus line. Road goes through tunnels in volcanic rock, along seashore. Many women out gathering seaweed and molluscs at low tide. Occas. gulls. A mostly white wagtail (?) along shore rocks, + a smaller tit (?) w. long tail + white outer tail feathers; and blue robin-sized bird w. red-brown breast (- nest w. large young in rock pocket at Horonai). No hawks seen, nor in forest. / Bus to Minamaya, then train at about noon to Aomori. Long way across. Saw a kite (brown; Circus?). Orientation + ticket bus. Aomori; then stayed at ryokan Sei Yu So.

30 June 1965. Left Aomori airport 11:45 on flight to Tokyo. Mostly cloudy so saw little. Then left Tokyo 1:20 on flight to Miyazaki, S^t Kyushu, + there met K. Yoshioka of J.M.C. Stayed at Niyatoso ryokan. Fine views over Japan sea of seacoast slopes + islets.

1 July 1965. Left 7:45 a.m. on bus to Kashima ($31^{\circ}25'N$, $130^{\circ}25'E$) Yoshioka told me remained horses at Tomimisaki; for breeding. Inoue studied, + his student Itani; and while there saw monkeys + became interested in these; start JMC w. Imano, Itani, Kawamura. / along road pasture + fishing towns, much planted Cryptomeria (good for boat bldg.). Coast of tilted sandstone strata. / Arrived opposite Kashima, at small settlement + inn at Ishinami, + met Mr. Iwaseko Tokito, retired school principal, interested in botany + monkeys. / Of 18 mat. ♀s on isl., said 2 births (found 3). 11 born last yr., + expect 10-15 this yr. All info. died last yr. during 20 day typhoon period, when island inaccessible. / This

Journal

1 July 1965

SE Kyushu, Japan

Racoons & badgers on island, + one fisherman + wife live there. Island 113.7 meters high on map, 800 meters greatest length, 200 to 500 m. from mainland, depending on tide. Channel w. strong current, often too rough to cross. at low tide 100+ meters sand bar on mainland side. Isl. surrounded by rock shelf, wall-like; cliffs to 60' high, sandstone. Entire isl. thick bushes + trees of many species, to 30' tall. Trails few + poor, + slopes steep; no flat ground. Near rocky fisherman's house, a red oval sign; Wildlife Protection Area. / Most common trees said to be: Tabu (Ficus), Isunysu, Nōmaki (largest; to 20" diam.), and Hamabīwa. Etc. for Isunysu, said to have leaves, fruit, twigs eaten by monkeys. ^{very (Enubīwa is one); monkeys eat it.)} A few deadwood shrubs, or tree. Neither Tokito nor Yoshida know scientific names of veg. / Said eat limpet on shore. / a few species on island. Yamāmami tree; monkeys like fruit, + same species grows in North, they said. / Ferns common. / Yoshida identified mother, seedlings. Left isl. about 5:30 p.m. + stayed at Ishinomaki.

2 July 1965. Left by taxi for Taininisaki at 6:30 a.m. Monkey feeding below on s. side of steep ridge where lighthouse (+ weather instruments). Much planted Cryptomeria. Bare hilltops maintained by about 80 free-horses; not pure stock, but part Jap. + Arab blood, said Yoshida. A fine modern modest hotel on point; Kuroshioos. Fish for flying fish in area (dark + stringy meat). About 100 monkeys here, said Y.; Ayuma studied for 1 (?) yrs. Steep slopes + thick green shrubs + trees, low second growth. Raining today. Monkeys fed irregularly. / We went by road to monkey feeding area, which was cleared + open. About 300' above sea level in canyon.

Journal

2 July 1965

SE Kyushu, Japan

Monkeys sometimes go shore, but not known to eat limpets. Single band w. wide range; about 2 x 4 km. / Flying fish + local abalone for breakfast. 10040, took bus for Miyazaki. 1025, town of abundance. Arr. Miyazaki 12:10. Dept. for Beppu 12:50 on train. Arr. Beppu. Taxi to Takahashi, 260. Looked at monkeys $\frac{1}{2}$ hr. in rain. Then returned to Beppu, + took train to Ohayama, all night trip.

3 July 1965. Arrived Ohayama 5:45 a.m. To ferry, + left 0800 for Shodoshima, 1 hr 10 min. ride. Visited monkey area at Choseki, where grp. of about 101 + 75, according to warden, not incl. cubs. / Orig. 5 bds. on Shodosh.; one transpl. to Okinoshima, another to Miyajima, + 1 split, so p 4 left (3 bds. left), + only main area regularly provisioned. When visitors arrive, warden blows police whistle + others say leave, + monkeys rush to site. / K. said that monkeys here showed much less dom. hierarchy + social tension than at Takahashi, according to studies by Kawamura + later Yamada. This first trip of Yoshida here. No current scientific studies. Climate prob. as mild as on Kyushu. / Monkeys in zone of red pine to 30' tall, + low bushes. apparently stay in pine zone. ref. to
M. fuse.
notes.

Said to be 45 born, I saw 1 ♀, close, w. 2 cubs. same size + appearance, ♂ + ♀. Warden said these twins, + that another set, to different mother, born about 3 yrs. ago (how know not adopted?). / Monkeys large, pelage good, + only occas. ♀ showed signs molt. Keeper said last yr. first born Mar. 8; late Mar. this year. / Bus to Karatsu, then down "rope way," a funicular, + saw large groups monkeys at foot. These grab handbags + other things tourists. / Bus downhill to Kusakabe, then bus to ^{ferry} ferry landing, + took 1530 boat for Ohayama. Then took train for Takahashi; island, arriving about 1730, + spent night in train.

Journal

4 July 1965.

Takahashi, S. Honshu, Japan

Small town on river ^{among} forested steep hills. Went to monkey park at Gagyu-
usan (slope near edge town) and observed monkeys. Rain on & off. Then
Dep. 1134 Takah. charged 3^{fx}. an. about 1930.
train to Nagoya. Electric train $\frac{1}{2}$ hr. to Inuyama. Bus to river park
at Gagyu-san. T. said $\frac{1}{2}$ million yen deficit / yr. Takahashi run by
Oita city, takes in 15 million, + has surplus. Gagyu-san much more pleasant
park, & town, than Takahashiyama.

5 July 1965. Monday

DMC, Inuyama, Aichi, Japan.

Raining; river high, muddy, fast. At DMC had conference re project
and budget with Dr Kawai, Takada, + Furuya, agents, Yoshida.
Evidently they had given little thought to specific details or justification of
budget. Prepared list all items desired for by Japanese, plus estimated costs.

6 July 1965. To Kyoto with Kawai, Nagai, Agency, ^{Furuya,} Takada. Confered w.

Dr. Miyagi, Itani, Imanishi at Dept. Anthropol., Kyoto Univ. In
afternoon discussed budget. Informed them I expected about 4 mill. 300 thousand yen
would prob. be enough, + they trimmed list to about that figure. Return-
ed to Nagoya + Inuyama. Rainy day.

7 July 1965. In Inuyama. Rainy morning. Visited Monkey Center &
exp. animal zone at former center. Budget conference. Mixed +
tried Bernyl; at 1 mgm / kg, put down 12 kg. of in 5 min. (10 mg/kg mix).
A large enclosure for Pates monkeys, with electrified fence.
Enclosure of about $\frac{1}{2}$ acres for lorises + langurs, w.
wire link fence + electric wire. Both areas seemed good
for study purposes, + animals there year around. Furuya
says that on islets in Matsue (?) bay off Nagoya, *M. cyclopis* breeds
seasonally, births Mar. to July; *Papio* all year w/o season; *M. rhesus* all
yr. w. 2 peaks, judged by totals, but upon looking at his data



Journal

7 July 1965

Inuyama, Aichi, Japan.

I saw the births in fall in 1961, first yr. after introduced, & that later they occurred earlier, peak about May; so a shift in time of births - not year around in any one year.

Add part under M. fuscata, 7 to 11 July.

12 July 1965. Slow train; arrived Kaz. 3 p.m. Taxi to main monkey park, where Mr. MIURA in charge. Overcast, windy. This was center of troop 5, previously studied by Kawamura (1955 article). About a dozen animals being fed apples, say beans, near office shack. People pay 50 Pt admission. Very tame; many eat from hand. Mine said about 95 total; peak births May; 16 born + 1 died; none pregnant now. Molt seemed completed. Animals in good condition. Being completed was monkey fence enclosing 2360 tanks "of hill slope. Fence about 9' link wire, 6± strands electric above w. overhang. Sp. will be kept in enclosure, apparently. This at edge crop area (rice, corn). A school across valley (weather records?). Much second growth on hill slopes, but patches forest w. Rubus, alnus, broadleaves. about 1/2 conifers. Green veg; rather humid, warm. This near to village of Sekitoyo (= Minegami?). Apparently on SE side of Takagoyama, about 1000' mt. This group will soon be fenced as poor for study. / By taxi we then went toward Kaz. again & turned back NE up long wooded valley w. occasional low cliffs to other side of Takagoyama, where troop A ranged & was somewhat fed. Nishiida had studied there for a month, & had lived in local farmers house. Few crops here, & few people; some slopes planted in Cryptomeria. Roadwork - so walked last 20 min., then came to sign w. monkey picture (just

Journal

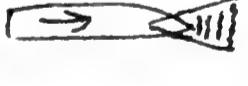
12 July 1965

Takagoyama, Chiba Pref., Japan

before a tunnel) and took trail up steep slope. About 15 min. up to crest of pass, where cool cooler soil sq. miles of deciduous trees up to the N. a 15' hut, where one could camp. Monkeys fed occas., but no formal seats or roofs, + all fairly wild. I saw about 6 animals; still molting; crown only on one ♀ w. inf.; part of mid-back on two large immns. Beautiful spot, elev. 800+ ft. elev. Two local men, who fed monkeys, said about 170, + that 19 inf. born + more ♀ & ^{sold} pregnant (27 last yr.?). They gave me chart of age + sex classif. by Nishida, made a few yrs. ago. Apparently this higher less-provisional band has molt + birthed ^A later than the provisions band A. S. Getting late, so returned to railroad in taxi, + on to Tokyo by train.

13 July 1965.

Kinkazan Isl., Miyagi Pref., Japan.

w. Kogane, slow train ($1\frac{1}{2}$ hrs.) from Sendai to Ishinomaki; then boat (\approx hrs.) to Kinkazan, w. stop at Ojikamisake (town $\frac{1}{2}$ hr. from Kinkazan). Saw 40 launches fishing with nets spread by pole + dipped from boat ; small boats converged on one school fish. Planted Cryptomeria; red pine tree; rocky shoreline - rectangular. Kinkazan about 3 mi. long, + about 800 m. off tip of peninsula. Clear blue water. Rock shelf shores (granite?). Main attraction about 3 temples, where hundreds of people, + prayer objects for sale. Little commercialism. Probably 1 largeovich Inn. A coast guard (?) station on one point. Temples have very elaborate + intricate wooden carvings on outside below roof - much weathered. A few monkeys in cage, + one big + free on a roof. A few tame Japanese deer among the people. Beautiful

Journal

13 July 1965.

Kinkazan, Miyagi Pref., Japan

large Cryptomeria, + old cherry trees, along approach to temple area. We walked up trail to crest (E-W?). Large trees widely spaced w. little undergrowth. Dogwood in flower. "Salal" common low undergrowth. Sedges, moss on ridge. above conifers, prominently deciduous - beech, maple, elm, oak; occas. Olive, Pine, Cypruse (^{a few} Cyparissus (some planted stands too)). Natural looking perhaps climax forest on N. side ridge; the deer looked natural there (a high alarm ^{squall} ~~easy~~, single, almost monkey like; sometimes repeated at intervals). Ravens, fairly common, noisy. A large + small-leaved species maple. Smaller-leaved elm w. red strings. (large leaves) (smaller lvs.) Beech - some in flower, some w. green nuts. /Ocas. + hys. At crest a sign: Oshika Hantō (peninsula), Kinka San (golden flower mt.), "Natural Park of Miyagi Pref." Much deer tracks, droppings, browsed bushes, but did not see the monkeys. Apparently no provisioning. Boy at temple said about 70 in a single troop. Walking good, tho slopes steep + locally wet. Away from main trail, clean + attractive. Prob. good for field work. Many gulls (dark slaty backs; some w. band tail) around island, especially flocking 500+ in evening on Peninsula. Excellent views up islandly cliffy coast from crest, tho a stratus day. Returned by train to Sendai. Hayama started back to Kyoto.

14 July 1965.

Aomori Pref., Japan.

Arrived Aomori by train from Sendai (7 hrs.). To Wakamatsuwa by boat - almost clear but hazy; light breeze; fine trips; T-sugars looked close. Azuma not arrived. Got ride to near end road (Tohoku?); 15 min to end road, then 20 along coastline (cliffs + boulders) to insect house of Kusakabe.

Journal

14 July 1965

Shimokita Pen., Aomori Pref., Japan

Then to Kaijake (?), monkey canyon. Several by the storage ^{shack} ~~shacks~~ where a supply of peanuts & wheat had been put out (1520). / at elem. school, saw new Kent weather instr. shelter + rain gauge; out 1 month; science teacher Kanji Kato kept records. He thought yrly. temp. range about -10° to $+26^{\circ}$. Calm, clear, low tide about 6:30 p.m.

15 July 1965. Drizzling rain night and in morning. To Kusadomari, + caught boat to Wakinozawa to await azuma + ^{hagel} Nagel; who arrived noon from Domari. They worked on construction problems there, + I walked back to Kaijake, 2 hours from Wakinozawa by coast. Tidal range about 3' apparently. Wakinozawa to end road about 50 min. walk w. pack. / Watched monkeys + crows at feed shed. Light rain. / Two info. picked up picnic food from box + ate. Ocas. some would fight + run off, or into tree. Strange to see monkeys climbing about in conifers! (Thujopsis), a few at a time departed; when adult leaves food box, others sometimes go to it immediately. All gone by 5:25 p.m. Calm; alto str. Vigorous play of 1-3 yr. olds on ground. 5:50, "came out" 2 3(?) to box; soon left. / 1845, 50 yds. upstream to s. of shack, 100 yds. down canyon, 3 yr. old played in Thujopsis.

16 July 1965. Light rain night; cum. str. morning. In moonlight, heard monkeys at night, to s., + at 7 a.m. To Kusadomari, conf. w. Azuma + Nagel; then up trail behind school, going E. Saw Dryobates-type woodpecker, Columba. At least 3 spp. Acer. Planted area of Cryptomeria. At 10:10 (9:40 left) at a shrine. Took branch I thought for Kaijake, but ended up going E. at low level. Larix w. new leaves. Saw a jay - crested, mostly gray, like magpies. In some areas forest the cicadas a loud chorus. No monkey sign, tho apparent rabbit.



Journal

16 July 1965.

Shimokita Penin., Honshu, Japan.

Returned to Kusodomari & Kaizohi, arriving 15.0. / Nagel & Ayu. secured materials & carpenter for feeder, etc.

17 July 1965. Overcast, windy. Confused Ayuna, Nagel; carpenter was building feeder. Departed Waa Kusodomari 1230 & walked shore route to Wakinosawa in 73 min.; low tide & light pack. No boats out due wind, so took bus & train via Ominato to shop at Tomori, & stayed there.

18 July 1965. Shopped in Tomori for eggt. & familiarization. Nearly everything obtainable; food shopping excellent. Some camping gear too. Prices higher than Tokyo, perhaps 10-20% on some items. In fish markets they sell apparent aged eel, like a red pineapple -  attached; big purple, red-orange, smooth, about 4" x 3". Octopus large, 10⁺ lbs. Apples, melons, peaches in markets.

19 July 1965. Alto stratus; calm. On dock 3 porpoises of 2 species, about 85 to 105 kg. (weighed), & 6' long. Large white and ventral. Apparently used for food (= canned whole?). I returned to Wakinosawa & Kusodomari. Feeder complete.

(15 1/2 °C. at 7 a.m. at feeding area).

20 July 1965. With Ayuna, took boat up coast to Fukino, coastal fishing town, 1 1/2 hrs by fishing diesel. High cliffs of ^{lava} fragments imbedded in matrix. Sea caves occasionally. Building + crops + people rare. Forested slopes, steep, mostly second growth, but many conifers. Saw about 6 ospreys, including stalk nest atop pinnacle, bird (juv.?) on nest, + 1 or 2 flying nearby. Also saw apparent Buteo, + 2 apparent aguila together. Cliffs changed to red + tan sandstone, + later to gray water-eroded

Journal

20 July 1965.

Shimokita, Aomori, Japan

rock (some badlands-like), w. some columnar structure. Yukuni had road. Visited Osamu Mori (F. Jr. High Sch., Sai-mura), amateur botanist. He knew Japanese names of plants well, but not scientific names. I brought 12+ leaf specimens which he identified rapidly, + located in the flora book. Azuma said a trap of 30+ to north of Fukumi.

21 July 1965. Windy night; $14\frac{1}{2}^{\circ}\text{C}$. at 7 a.m. Yesterday Az. & I designated most trees, + marked w. tags, for phenological & nutritional survey - 10 species, marked 2 of each (1A, 1B etc.). With Azuma & Nogel by bus & train to Donari. Shrub in bloom (Deutschia?) along edges farm plots. This is about end of summer wet season (tsuya?); affects monkeys too. Now people said to leave city (Tokyo) for cooler spots.

22 July 1965.

Sendai

, Japan

Azuma & Nogel to Kirihara for inquiries. Visited Takada Univ.; Dr. Aoki in Physiology, med. school. Then Dr. T. Schlanger, NSF grant geologist, at Inst. Geol. & Paleontology. University buildings dirty & run down, but people pleasant.

23 July 1965. Fri.

Tokyo, Japan

Back in Tokyo to confer w. NSF, get mail. Letter of credit had arrived from Delta. Established free gen acct. at Chase Mank. Banks. Bought camera, Minolta C-3, w. 80 + 180 mm lenses, at Kinura, about, block N. of Edo-dori on Chuo-dori.

²⁴
24-²⁵ July 1965. Sat., Sun. Office work, Tokyo, + confer with NSF offices. Confer w. Nogel re budget.

27 July 1965. Took 6 a.m. Hikari to Nagoya, then train to

Journal

27 July 1965.

To Inuyama, Aichi, Japan

Inuyama & J. Monkey Center. Confered w. Toshiba, Kawai, re budget. Revised the budget + categories.

28 July 1965. Budget business at JMC. Paid M. Kawai 600 000 yen, + worked out budget limits for August.

29 July 1965. Returned to Tokyo (Fri.). Confered with D. Arvey at NSF.

30-31 July 1965. Tokyo. Paper work + correspondence. The hot post-rainy season now; many more summer + weekend travelers.

1 August 1965. Departed 11 a.m., JAL, for Hong Kong. Visibility poor below much of way, but many foam streaks on water. No view of Taiwan.

Went up the Peak tram + walked the circle around the Peak. Saw + heard many birds - soaring hawks, tits?, cuckoos (?), in Sparrow-like vegetation. Large snake (3") ~~dark~~ striped. Saw no lizards. Various hills in sight bare, or treeless + green; any former trees probably long ^{gone}.2 August 1965. Visited Hong Kong Univ., which had fairly modern biology building (on #7, Aberdeen, Lantau Island). Holiday. Dr. (Mrs.) Marshall (ne Aldridge) on leave; she ^{was} said to be interested in mammals. Dept. Head, Thorncroft, works on adenoviruses. I talked to only 2 Chinese girls. Visited Repulse (ive) Bay, + Aberdeen - a small pocket of seething Chinese boat + market life. Sea littered but still blue, not muddy. The Chinese girls in zool. dept. bought little animal trade thru H.K., tho occasional civet or pangolin in food market. One said a hill in New Territories formerly had monkeys in pine + was called "monkey hill" (no specimens).

3 August 1965. Departed 1525 for Delhi via Bangkok. Much calm deep blue sea. Much seemingly uninhabited hilly jungle, + wide red brown muddy Mekong R. India plain brown, the parks frequent.

Journal

4 August 1965Delhi, India.

Crows, mynae, parrots, lutes in city, & many other birds too - why so many? Gray-necked crow bold. Hot & humid; monsoon season (said to start about July 15). Visited Patterson Ltd., on airport; DD Dhaman still manager, & T.E. Patterson, wife, & children living in house in compound. He very talkative & hard to follow. The plant & expt. about as before, the P. said going to fix place to incubate "animals 1-2 weeks before shipment. He said animals now usually held at ^{farm} ~~farm~~ nr. Port Washington, L.I. Also that he shipped monkeys from ^{nr. (Honolulu)} Kuala Lumpur & Bangkok. Visited Vita Pet. Ltd. (32 Alijzer, opp. Old Secretariat) and talked with elder Mr. Rai & office staff. Departed 10 p.m. for Dehra Dun.

Dehra Dun, India

5 August 1965. arrived D. Dun about 8 a.m. Flat green region with forested hills bordering. Headquarters of Forest Research Inst. and the academy of Indian army. By taxi 2 1/2 miles up switchbacks to Mussoorie, a hill station on ridge at about 6000' elev. Cedrus deodara & Pinus there. Met by Donald Lindburg, U.C. anthrop. grad. student, who is studying rhesus monkeys. Both langurs & rhesus in this area. Various missionary schools. Cool summer resort zone. We drove down to Dehra Dun in afternoon, then to Lindburg's head quarters at Asanari (?) rest house, at edge of forest (Shorea robusta dominant). I took walk in woods & saw a group of Presbytis entellus, including one ♀ w. black-faced infant. Also I heard the barking deer - dog-like single barks at intervals sec. seconds; Lindburg said these fairly common. Some mosquitoes evening, but no rain.

6 August 1965. With Lindburg searched for his rhesus study group of 30+, which he had lost. We saw two

Journal

6 August 1965.

Dehra Dun, U.P., India

other groups during day, in about 6 hours of walking track. Many birds - lapwings, babblers, bantams, jungle fowl (heard only), peacock, & colorful small birds. Stayed at shack near dhole bungalow. L. said he had seen chital, leopard, wild pig in area, & a tiger once briefly. Lindblay spent a few months in field ^{in U.P.} w. Blagis Jay in roadside surveys of monkeys & search for good study area. Now he is to make ecological & behavioral studies in single area.

7 August 1965. Spent day in field w. Lindblay, & saw large band of monkeys in Sal forest - perhaps 60 in group, tho I was sure of only 20, mostly imm. Mushrooms being eaten avidly. Saw 3+ pygmy owls, some apparently young, in forest. In afternoon drove thru Dehra Dun (unattractive) to grounds of Forest Institute (imposing; huge park-like grounds), where there were some rhesus groups, & we saw one group of 20+ which readily came to food thrown on edge road. We drove several miles out to area of Timali (sp.?) block, then returned. Sal (Shorea) about 40-#70 ft. high dominant in all the forest patches. No rain all day; occass. clouds.

8 August 1965. Spent morning looking for monkeys; saw no rhesus. In evening departed by train for Delhi. No rain.

9 August 1965. In Delhi, visited Vito Pet. Ltd. and their monkey farm near Ring Road. Little change from my 1962 visit. Mostly 4-8 lb. animals in gang cages. Adults, 14± lbs., mostly very old ♀♀ (10 yrs. or +), some almost decrepit, and adult ♂♂ too (largest 23 lbs.) looked like

Journal

9 August 1965.

Delhi, U.P., India

lower ranking ones, some slightly deformed (but 1 good 23 lb. ♂, + 2 good subad. ♂♂). Two "golden" ♀♀ 2-3 yrs. old in cages. (One cage about 25 bouquet monkeys, 6-8 lbs. - tails long & straight.) ~~The Indian~~ The Indian who showed me around said that their own men merely brought the monkeys & had nothing to do with the actual captures. I took plane to Bombay.

10 August 1965. In Bombay talked briefly with M. S.

Rai about monkey shipping business. He showed little enthusiasm & was planning to go to Europe this winter for a long stay. He had plans for movie of monkey capture & handling & shipping. I departed ^{10:30 A.M.} ~~11~~ a plane on EAA and flew via Karachi, Aden, to Nairobi. Aden area a rocky desert. Cloudy over Africa - did not see the big mountains.

11-13 August 1965.

Nairobi, Kenya.

Talked with Dr. B. Leakey at Coryndon Museum on 11. On 12 he took me to visit Tigon, where Cynthia Booth (& husband Rivers) run ranch & have 100+ monkeys in cages. They also had starts collection skins & skeletons. Leakey seemed most interested in taxonomy now, reprod. & behavior later. Cynthia monarchic & talkative, but seemed to know her African monkeys. She was to go to Zanzibar in Sept. to census Colobus ladrunculus in a small forest there. Caged animals seemed in fine health & seemed to be her main interest. 2 or + black & white colobus of 2 forms in cages. An adjoint and being acquired to expand facilities. A newly arrived girl from Wales was to study bones, tho apparently a beginner in this field. Leakey continued to

Journal

12 August 1965

Nr. Nairobi, Kenya

Talk glowingly of Jane Goodall & her continuing (?) studies of chimpanzees in Kijosma. Leakey in good health & humor, talkative; I was impressed w. his broad interests & knowledge. / Coffee & tea growing nr. Nairobi.

13 August 1965. Spent about 2 hrs. in late afternoon in Nairobi Nat'l Park, 10 miles from Nairobi. Mostly grass plains or rolling; some wooded areas. Grant gazelle, Thomson's g., hartebeest, gnus, wart hog, giraffe (1 are only), baboons (1 are only, nr. giraffes - climb on cars; only 1 trap?), hippos (4 in 1 pool), vultur (nr. hippo pool), marshans. Ostrich fairly common; often alone, or mostly. Guinea fowl flock; francolin or bustard in pairs. / Probably some regulation of numbers through removals. Hedged trees & shrubs, but no severe over-grazing. One jackal seen; it rolled in dung or urine?.

14 August 1965. Departed 0915 by train for Kampala, a 24 hr. ride, going across Rift Valley & over 9,000 ft. level. Cattle, cornfields, planted eucalyptus & pine & other conifers, patches forest, occur. native towns. Drier across Rift Valley, & 2-3 large lakes seen. Few birds seen, & no wild mammals.

15 August 1965. Sunday. Arrived Kampala. To Makerere Un. Coll. & met Dr. Jane Thunton, & later T. Russell, Owen, & others. Dr. Delaney in Ed. dept. Stayed at Univ. guest house. / Climate warm & muggy; Puerto Rico-like. Bata (fruit) said to hang in eucalyptus at some seasons. [Epidemic]

16-18 Aug. 1965. Business & shopping in Kampala.

19 Aug. 1965. Obtained 1960 Holden station wagon thru Cooper

Journal

19 August 1965.

Kampala, Uganda

Motors on repurchase deal. Sent Japan budget request to Delta.

20 August 1965. Departed 0915 for ^{Ft. Portal} Kampala, via Mbulende. Paved road ended long before Mbulende; then after 20 km. Patches of trees but country broken up by crops, burning, banana, corn. A long go drive, about 200 km mi. Met Bhamija in his store (source of local info. + goods). Stayed Hot springs Hotel. Bawali, 2 modern hotels, adequate imported food here.

21 August 1965. Saturday. To the central office bld. m. mts. of Moon Hotel. Met Kingston, the DFO, + Peter Hay, Game Dept. bld. Both friendly Englishmen. Bass + Wrig from Pullman had been here not long ago. I with Kingston took drive ^{there} to Kibale Forest via Kagera sawmill S. + E. to Mbanga R. bridge, then W. to Kanyawere. No old mature forest, but some recent, some being cut, + some large areas of elephant grass. Kingston gave permission to camp at Sebitoli or Kanyawere forest station. We went to former, where a small house available (no utilities). I visited Bill Pritham at Kijani tea estate, where he had been since 1932. He was friendly, formerly of game dept., + knew animals fairly well. We saw 2 or 3 gpa. colobus, + heard them, in forest bordering his tea field. Pritham said forest much disturbed now by poisoning of some trees, + log cutting. Cleopatra few now, tho we saw recent carcass on one road. Hippo gone from Mpanga R. Genius found + francolin in forest. About 6 sp. monkeys, incl. some chimpanzees, P. said. Rainy season starting, tho not so sharp change as no. Mbarara to S. I have mostly white hornbill (*Bucorvus*?), pr. *Francolinus*. Met mine geologist, Italoia, Mizzan. Saw some blue + red tailed monkeys.

Mod. rain 5-6 p.m.



Journal

(Selutoli; Kibale Forest)

22
20 August 1965.

Nr. Ft. Portal, Uganda.

In morning watched Colobus albus. & redtail m. Kigami Estate. Heavy rain 4-6 p.m. To town for gasoline.

23 August 1965. In morning watched monkeys m. Kigami Estate. Then to dam road 1 mi. to Elephant Control Path, walked to Mpanga R. and 1/2 mile upstream. River muddy water, brown-gray. Stopped in Ft. Portal. [about 12:30, shot way N. of Birdham jet; 3 monkeys ran to E. across road. We heard grunts in bushes within 5 yds. of us, & saw bushes move, & finally sounds of running off, but not guys trees. Carla K. said saw one; black w. brown social; chimps? or red colobus? / Forest guard said chimpanzees recently seen in area Kampala Rd. just E. of county line; sometimes crossing road. / Stayed Selutoli.]

24 August 1965. Observed in Kibale Forest on road 5. from Selutoli, until (p. 9 mi. w. of Mpanga - Kanyawara rd. jct) stopped by mud. Saw ~~swallowing~~^{C. badius} groups. Saw, black shank-sized mammal run across road (gorilla?) m. Niyatari in crossing. Saw hornbills, turacos, in patch more mature forest E. of Kanyawara; I first reached by dirt road for about 8 mi. SSE of Ft. Portal, then 3 mi. E. Also blue, redtail, & low colobus in forest. / Rain now & again, light, 4:30 p.m. Nearly clear 9 a.m. but overcast noon. / Trees in flower - Erythrina conspicuous, bright red, leafless. (Sunbirds feed.). Also Apothocarpus, red flowers, w. leaves. Some trees w. yellow flowers too. But generally few flowers. / In Kanyawara forest saw francolin too. Returned to Selutoli for night.

25 August 1965. We left Ft. Portal 11:15 and drove via Kasese to Queen Elizabeth Nat. Park. Talked w. Chief Warden, I.C. Ross. Saw usual game - elephant, hippos, kobs, waterbuck, warthogs, & others, and 8+ hyenas about 7:30 p.m. on Royal Circuit. Stayed

Cercop.
lhoesti

Journal

25 August 1965.

Queen Elizabeth Nat. Park, Uganda.

at Student's Camps. Hard rain evening.

26 August 1965. We crossed Kazinga Channel on ferry (1 car). Then drove S. across Nyamwezi R. nr. Lake Edward, at corner of Maramba game Forest, then S. across Kazinga R. (balloons about 1 mile S.) + to fishing village of Rvenshoma. Then ^{lodge} back to Katunguru. Many bat on flat green burned area. Rain prevented visit to Lake Nyasamusingie, where said to be colobus + other monkeys. Back to Kabatoro, then N. or Crater Track + camped nr. Balloon Cliffs, at top edge one crater. Some rain at night. Saw 2+ balloons in eve. on open ground at Balloon Cliffs hilltops. Hundreds of warthogs nr. Kabatoro + Rvenshoma.

27 August 1965. Drove on to Kibaango + N. to Kamwala kwezi loops on Lake George flats. Many wart hogs; also buffalos, red bush, elephants. Thick grass, shrubs; little apparent traffic. Returned to Ft. Portal + Sebitoli. Brief obs. monkeys evening. Hail at night.

28 August 1965. Saturday. Obs. monkeys morning. Visited Prisham. Collected forest mouse (^{C Bk 300})

29 August 1965. Sunday. Counted monkeys along road S.

of Kagera in morning. Carla K. saw 1 chimpanzee nr. Nyigata River 1030, about 15' up, hanging on branch. We first well saw Colobus abyssinicus calling rain.

30 August 1965. Camps walk, shopping, visit Prisham.

31 August 1965. Departed mid-morning via Ft. Portal with W.O. Prisham + sons + Antonio & Meijan for Toro Game Reserve, 32 mi. from Ft. P., at about 2000' level. Camped at Wasa Camp (tamarind), 1/2 mile before steel bridge, within 1 1/2 mi. airline of Uganda Wild-Devil. Lodge.

Pan trog.

Journal

Lt. Uganda

31 August 1965.

Toro Game Preserve, nr. Ft. Portal,

Dry savanna plain with riverine forest & scattered trees. Large nos. kobs, but also waterbuck, leopards, elephant, & many buffalos (one heard ^{had} 200+). Hunting allowed under permit & payment. We saw blind at kob territorial ground where H. Bushbuck roared. Giant ground hornbills striking, feeding on ground in open. A few redbills in kob groups; leopards with Defassa waterbuck. A few warthogs. At night heard lion hyenas close, lion far. Threatened but did not rain. Few inhabitants, go not overgrazed, & very pleasant area to work, tho' muggy & tame. Pridham took us game watching ^{trip}.

1 September 1965. Pridham took us on tour of much of area. No ostrich, rhino, ^{Zebra}, giraffes here. Kob most abundant. Hundreds in sight at once occasionally. Saw colobus monkeys in riverine trees near Waza Range, & heard calls in evening. Baboons & civets said to be present.

2 September 1965. We drove about 1/2 mile to edge of Lake Albert, hired large outboard motor boat, & went fishing (trolling) for Nile perch. Caught but 1, about 2 lbs. Rocky escarpments & spectacular falls near mouth Nkisi River. From boat saw 3 bands verests & 2 bands (3 to 6) Colobus abyssinicus in broadleaf trees along sloping shore. Also 1 dead hippo, many fish eagles, 2' lizards, kingfishers, pelicans, small birds. Water muddy; level had risen 20[±] ft. during last few years, Pridham said. No other line fishermen seen. Departed dock landing about 2 pm; car trouble delayed return to camp. Koford family stayed overnight, while others returned to Ft. P. in evening.

Journal

3 September 1965 Toro Game Reserve, nr Ft. Portal, Uganda

Lion roar, + hyena close at night. Rain about 4 a.m. + for a few hours after. Visited the hunting lodge, from where we saw + g.s. colobus at once + heard another, in river forest - good place for lemur territorial census? Returned to Ft. P. + Selbitoli camp.

4 September 1965. Pridham's left for Paraa. Elephant said shot 5 mi. down road last night; we went to area + saw many tracks but did not find body. Camp work.

5 September 1965. Sunday. With Antonio Meijan, drove S. thru Kilole Forest to Bid Bigodi. Patches forest + elephant grass. Said once grazed, but grazing ceased because of moggans. Then N. to Kigarama, S. to area of Kasenda, where road passed between 2 crater lakes. The slopes of crater mostly well forested. We saw no monkeys, but Meijan said he had seen baboons, more than one, cross road nr. county line (Dura R.); a fair patch of forest here. Returned to Selbitoli camp. / Snap trap in woods nr. Pridham's road caught 1 mouse during day (KAK No. 1). / Unsuccessfully looked for carcass shot elephant.

6 September 1965. Camp jobs. Shopped in Ft. Portal. / Yesterday acquired 2 Chameleons taken nr. Kigarama. Still have large bat found in forest on Sept. 4; yesterday it gave birth to dead inf. (preserved). / In evening saw chimpanzee nr. Nyugata crossing, + ad. & w. yearling (?) brushbuck on road nr. mile 5.0 on road s. of Kagera Saw Mill. [= 1' forest's growth] / Good view of white-throated monkey.

7 September 1965. Departed 6 a.m. + drove to Kampala. Left animals, visited in zool. dept., shopped. Camped nr. Entebbe at edge Lake Victoria.

Journal

8 September 1965

Entebbe, Uganda

Visited Sylvester Ruweya, Game Dept., Entebbe. Saw monkey skins & found my "mangabey" = Colobus badius, & the black monkey w. brown back & white throat = C. l. haehti. Camped.

9 September 1965. Shopping Kampala. Bought telescope & small tent. Drove N. via Bombo toward Masindi & camped along way.

10 September 1965. To Masindi, & Murchison Falls N.P. Little game compared to Q.E. or Toro Reserve. Very little shade in hot country. Roads rough. Drove on Buligi track & saw fair numbers mammals. Visited the falls; oh but disappointing.

11 September 1965. Talked with Chif Warden (?) Wheaten (?) about monkeys. He said that K.R. L. Hall had studied ^{Patas monkeys} them within a mile or so of headquarters. He sent a boy with me & we walked 1½ hrs. but saw no Patas or other monkeys. Drove to Masindi, then W. toward Butibba. At mi. 26 fr. Masindi (18 from Butibba) talked to forest guard who told me Marler had stayed in rest house about 1 mile to W. Forest in this area thicker foliaged than Kibale, but much cut over, replanted, & variously mixed up. Hot & humid compared to Kibale, & far from supplies. Looked at Butibba, then drove S. thru Hoima & camped.

12 September 1965. Drove on to Kibale Forest & stayed at Sebitoli forest station. Rain in afternoon as usual. Sunday.

13 September 1965. Watched Colobus along sawmill road in morning. Rain started 3 p.m. Saw red colobus groom a redtail! Saw 2 white infant colobus.

interspec.
groom

14 September 1965. Obs. along Kagera 5M road. Saw Cercopithecus

Journal

14 September 1965

Kibale Forest, Tororo Uganda

nr. mi. 5.5. Black & white baboons common in pairs.

15 Sept. 1965. Put .1 mi. marks along road S. of Kagera Saw Mill.

16 Sept. 1965. Visited D.F.O., Kyagata, in Ft. Portal. Rain in morning. Drove to Kanyawara-Mpanga road about 4 p.m. but saw no monkeys there (on E-W road). No rain p.m.

17 September 1965. Put more marks along road. Watched groups in Kyagata Estate area. Saw 13 Colobus badius in eve. No rain.

18 September 1965. Watched 2½ hrs. morning on Pridham road. Moved from forest station to Pridhams. Clear morning; saw summit Ruwenzori. Brief road survey eve. No rain.

19 Sept. 1965. Sunday. Walked Elephant ~~Control~~^{Control} Path 2 hrs. morning. Walked monkeys Pridham road afternoon. Rain about 5 p.m. saw 3 Colobus albus on ground on road. Rain for 4+ hrs. about 5 pm. ^{then rain 4pm.}20 September 1965. Saw herd 20+ Calobus badius. Trip to Ft. P.

21 September 1965. No rain. Obs. nr. Kyagata estate + Kagera road.

22 September 1965. Obs. nr. Kyagata estate + Kagera road.

23 September 1965. Same. Rain afternoon. Both red & black & white colobus consistently in forest at NE edge Pridham's tea estate.

24 September 1965. Collected 3 teeth from elephant skull nr. mi. 5.7. Eve. walking census 1.1 to 2.1. Good view C. l'hoesti ot. Rain p.m.

25 September 1965. Saturday. Morning sunny, ¼ alto clouds; Ruwenzori summit visible from Pridham house. Morning census mi. 1.0 to 2.1. No rain until night. Kristi saw a serval cat on road near mi. 2.0

26 September 1965. Overcast. Watched monkeys on roads & trails morn.

Drove to 5,7+ return eve. Afternoon calm, alto stratus.

Journal

27 September 1965 (Mon) Kibale Forest, Toro, Uganda

Observed monkeys near roads morning. Count 1.0 to 2.1 eve.

28 September 1965. Still at Pridham's. Alto stratus overcast; showers 11 a.m. Saw 3 chimpanzees cross Pridham's road. Watched monkeys along sawmill road.

Up to 10 taracos in single coffee bush.
29 September 1965. Watched monkeys Kagera 5 mi road.

30 September 1965. Same! Toro Game Preserve, Toro, Uganda

1 October 1965. Overcast & rain morning. Departed Kingami estate 1030 for Toro Game Preserve. Rain morning. Arrived 1:30 p.m. Saw Colobus albus and Papio. Camped $\frac{1}{2}$ mile downstream from Wana R. bridge, at Bushman site 50 yds. from edge mixed forest bordering river. Heard lion, hyena. Saw waterbuck, kudu, reedbuck in area. Shower in afternoon. Margins at night.

2 October 1965. Rainy morning, w. alto stratus overcast. Saw Papio & Colobus abyssinicus m. camp. Camp to the game lodge = 2.5 mi. Obs. same from area of lodge, where good patch riverine forest. Rain eve.

3 October 1965. Obs. near camp & lodge. Rain afternoon.

4 October 1965. Overcast. Obs. near lodge & camp.

5 October 1965. Same. No rain. To Kibale Forest, Toro

6 October 1965. Departed Toro Game Preserve & drove to Ft. Portal, then to Kingami estate (Mr. Pridham's).

7 October 1965. Evening obs. m. Kingami estate.

8 October 1965. Ft. Portal trips; car repairs. Evening obs. Uganda independence day.

9 October 1965. Corresp. & office work. Much rain afternoon.

10 October 1965. Sunday. Drove to Ft. Portal & S. to Dura River, about 18 miles. Looked for monkey there. Then to Kanyawara forest station, + 5 miles into forest. Returned to Kingami Estate for night. From rangerhouse at Kanyawara, .3 to first forest patch of 1.2 miles; then road thru alt. patches forest & grass until 3.5 miles fr. house, and .8 mi. in a small bridge.

Journal

11 October 1965

Kibale Forest, Toro, Uganda

Rolf & Kisti watched band colobus morning. I, brief survey on rain-wet road. Showers midday.

12 October 1965. Foggy morning. Read documents in office of D.F.O.; kids watched monkeys morning. Watched along road eve, + saw 3 chimpanzees. Rain afternoon.

13 October 1965. Drove to Entebbe & camped by L. Victoria.

14 October 1965. Visited Ternent & Rhuweza in Game Dept.; Dr. Williams at Virus Research Centre - good base for operations, w. labs, cages, monkeys, incl. many rhesus.

15 October 1965. To Kamwala. Visited Ravelle, Delany, others at Mabere. Visited Ministry Internal Affairs, Entebbe.

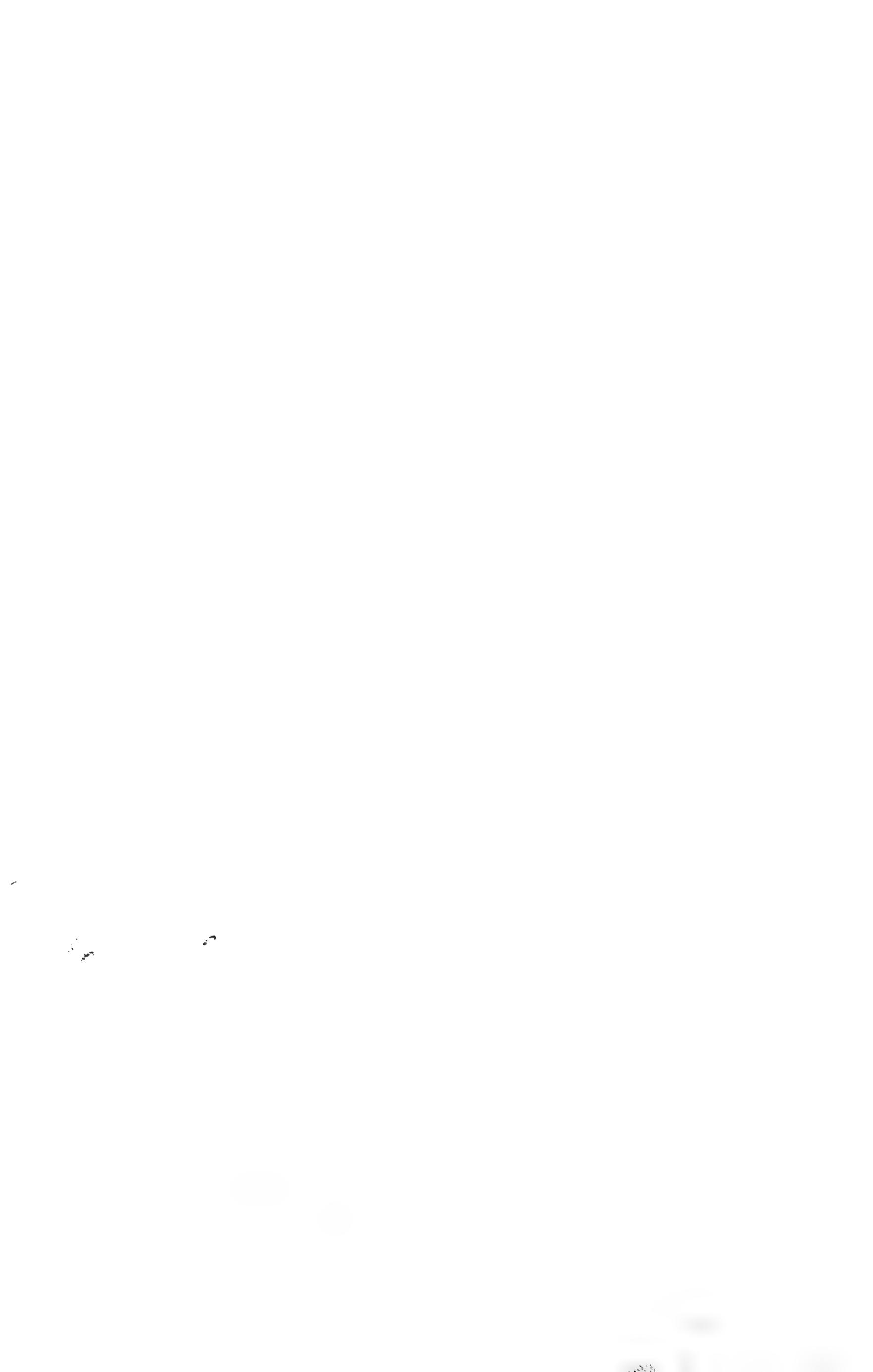
16 October 1965. Saturday. Visited Ravelle, Delany. Then drove to Jinja and camped edge golfcourse.

17 October 1965. Drove to Tororo, thence to Mbale. about 20 miles before Tororo, road passes thru a few miles of forest, said to include monkeys. Drove to Budadii and Basulani, takeoff place for climb to Elgon summit. Rain. Forest started 1,000' above highest pt. reachable by steep dirt road. Many abnoxic people along upper road. Returned to vicinity Mbale & camped.

18 October 1965. Visited D.F.O. in office near Post office in Mbale. He gave permission to use rest house at Kapkhwata, softwood plantation on NE side Mt. Elgon at edge forest. Drove there (65 miles) on the mt. road toward Kenya. Pretty waterfalls over cliffs along way. Up & down dirt road, muddy when wet,

Journal

- Uganda
- 18 October 1965. Kapskewata, Mt. Elgon, Sebei, a steep in parts; barely made it in sta. wagon w. load. Pines & cypress planted to rye, barley, rye on many acres (100+?). Walked to "fire tower;" saw & heard monkeys from there. Fine views of forested slopes.
- 19 October 1965. Rain all day, but stopped mid-afternoon. Then to "fire tower;" a 150' rock outcrop at up-slope end plantation, & counted monkeys.
- 20 October 1965. Overcast but no rain. 0930 to 1 p.m. atop Fire Tower, counting colobus. Rain about 2 p.m.
- 21 October 1965. Spent afternoon in area of fire tower. A trail starts there & goes about 5 mi. into forest to W & NW; I followed it 1/2 hr., thru 30-50' trees & occasional small grassy openings. From tower one sees black "raven" with broad ^{wings} tail, short tail, & feathered wings. Went over by bicycle to Buhoma for gasoline. Little rain night.
- 22 October 1965. D.F.O. arrived & sold me petrol. Broken clouds today; dryest yet. Drove to Mbale, 65 mi., without difficulty. Later drove via Siroko toward Moroto about 40 miles, into dryish thorn bush area & camped. Many doves, bird flocks. Heard lion at night to N.
- 23 October 1965. Drove N. across Bush River into Dabasien game preserve. Giraffes fairly common near road; saw 3-4 g.p.s. to 11, w. givs. Eat delicately at the 10-15' tall spiny thorny tree (w. ants & galls numerous). Plains not open but have ^{small} tree 5-20 meters apart. also saw hartebeest, oryx, zebra among trees. Some rocky hills w. caves & bird lined holes. Then through village of Namukin, near cotton estate. Villagers very black, women w. bare breasts & many metal neck rings. Men naked largely, esp. in genitalia, & nearly all boys naked. Men carry walking sticks.



Journal

23 October 1965

Nr. Mt Kadam, Karamoja, Uganda.

and a tiny ($3'' \times 6''$ seat?) 3-legged stool in one hand. Some more lip ornaments, tallow on arm, skin clothing - rather primitive, & only 60 mi. from Mbale. / Road close to mt. on N. side. Scattered trees down slopes & forest patches on higher slopes, but mostly cliffs, many vertical - fascinating but difficult mountain. Returns to Mbale & drove on to camp 20 miles toward Jinja from Tororo, in small forest of 50' trees. Hard rain late afternoon.

Sunday

24 October 1965, Sunshine & broken clouds. A group of 7 men laden w. rope nets, sticks, spears, walked by our camp - poachers? or monkey trappers? Monkeys probably here, tho saw none. Many bird calls - turacos, hornbills. / In area nr Kadam, many cattle, mostly white zebus w. ribs prominent, herded by naked black boys. Euphorbia trees some sites. Saw no game outside of preserve

25 October 1965. Drove to Kampala. Camped Entebbe.

Entebbe, Uganda

25 October 1965. Visited F.R. Manu of Verets (EA.), monkey collecting company. Formerly operated in Kenya (Nairobi). Ships mostly verets (to 600/mo.), but has some Brazzaeas, redtails, in cages. Puts injured & some escape on small offshore island near airport. Has 10+ fish eagles in cage. Helped Dr. Vickers of Lederle make a film in Kenya. Willing to collect special material. Says verets bite tails of others & selves, injure selves if cage too large. Ships to Beijing (Germany), Stockholm, Japan mostly; also to USSR & U.S. drug cos. Operates by setting up camps, shows locals (to 200) how to make box traps of sticks or wire, pays 5 sh. each for monkeys. Verets caught w. vid box traps, not nets. Friendly, German, about 55 yrs. / At Kampala,

Journal

25 October 1965 (Mon.)

Kampala, Uganda.

Dr. Delany told me that he had applied to Minister Internal affairs for collecting gun permit, for me & dept. zool. Camped at Entebbe.

26 October 1965. Business in Kampala. Then drove to Fort Portal and stayed at Kerigani tea estate.

Kibale Forest, Toro, Uganda

27 October 1965. Office work, & evening monkey census. Relocated "snog tooth," "stump tail," & some familiar groups of Colobus alyssinicus. Overcast but no rain.

28 October 1965. Sunny morning. A few Mitchania trees now have long fruit pods. ^{then} Nettles have large flowers. An Erythrina tree, leafless w. red flowers when we arrived about Sept. 1, now fully leaved, w. no flowers; others of same sp. ^{have become} bare w. red flowers. Evening census along road.

29 October 1965. Heavy rain (1.87") night. Mr. Pridham said area near estate logged about 10 yrs. ago, & that the forest patch ^{now} on NW side of estate similar to that cut. Also, he said much poaching of monkeys in area about 8 yrs. ago, natives using skins for dogs, bicycle seat covers, etc. I started clouds a.m. Watched & counted monkeys to 1030. Rain noon.

30 October 1965. Light rain on & off most of day. Census of monkeys evening. Turaco fed same Mitchania tree as Colobus alyssinicus, tho later.

1 November 1965. Sunday. Cumulus strokes morning. Rain 11 a.m. Monkey census evening. Few Mitchania flowers now; many of these trees w. long pods dangling.

2 November 1965. Go watched gp. to C. lodi morning. Rain early aft. Evening road census.

Journal

November 3, 1965.

Kibale Forest, Toro, Uganda

10/10

Clear morning; alto stratus by noon. Road survey of monkeys.

November 4, 1965. Sunny after fog lifted. Road survey monkeys. Selected "bink tail," now w. infant in go. (C. alyssinicus). Drove to 5.84 stream; now logging to E. there. Walked tractor path to W. from 3.8 + saw no monkeys in $\frac{1}{2}$ mile midday. Saw C. l'hoesti again. Forest Mgt. - talked w. B. Kerston. Cut near Pridhams about 1959. about 5 yrs. after do strip count main comm'l species (4%) + use to judge treatment (falling, & thinning, girdling, poisoning). Shot birds then like Trems not poisoned. Poison by spray on bark, girdle + spray, remove 12" bark, etc., depending on sp.; 2, 4, 5 T. (longer cutting now about 22 trees/acre; goal is 40. Formerly cut less. Present cut about $\frac{1}{2}$ of standing trees (of suffi size). K. thinks will result in even aged closed forest of the 15 valuable sp., somet. all on single acre, but prob. 1 or 2 (Newtonia & Fagaropsis?) mostly. K. said V. Reynolds published that forest dept. poisoning changes food? trees, but K. says V.R. did most studies in heavily poisoned area. In morning flock of 200+ storks (Ciconia nigra?) roared to S. over road, 1000 \pm up. white bellies; red legs extended beyond tip tail (black rectrices). Nov. 2 + today saw 2 ibises in swamps by O. B. W. Braun; iridescent green on dorsal folded wings; red area top base bill; near white line along jaw on shk.

Even Date
Nov. 1 + 5
1 day
ahead

Nov. 5 + 6 - see monkey Census sheet; when entered by mistake.
^{p 6}
^{.87"} rain midday.

November 5, 1965. Saturday. Walked along Henia block forest road for 1 hr., to area damaged eucalyptus. Photoed, + returned. Saw C. alyps; C. badius, reddish, blue, mangabey in Henia block. Last striped bark. Good monkey Aotz trail but many biting flies. Rain 12-1600.

Evening census Lammill road.



Journal

7 November 1965

Kibale Forest, Toro, Uganda

Sunday. Rain midday again (.75"). Eve road census. Bear K-8 sign saw 2 gray parrots (red tails) in green Erythrina tree; cut off some leaves.

8 November 1965. Departed 9 a.m. & drove to Kampala; camped Entebbe.

9 November 1965. Found me 3 days for Kenya visa. Visited Nakuru.

10 November 1965. Visited office of Commissioner of Forests (Stuart Smith); Entebbe.

11 November 1965. To mangabey study site in forest N. of Lugazi w. Neal Chalmers, Denny, & others.

12 November 1965. Returned to Kampala. Got visa. Departed for Kenya.

13 November 1965. Drove to near Maiben & visited Richard Leather, cattle rancher. ^{his ranch} Camped on Maiben River (15' wide) where thorn trees ring riverine forest 100± yds. wide containing colobus & blue monkeys. About 6000 ft., cool, semi-arid. Large pigeons common. Wendy ^(or oibi?)

14 November 1965. Sunday. Shot pigeons. Saw 2 duikers in cattle areas. Heard colobus at night. Counted monkeys. Saw guinea fowl and rock hyraxes near Leather's house on Maiben River. Wendy still.

15 November 1965. To Maiben, talked with local people. Pleasant English community of 20 or so adult whites.

16 November 1965. Drove via Eldoret to Nakuru. Saw the few million flamingoes on Lake Nakuru; you can drive within 100 yds. of the birds at many spots. No visible wardens. Rain midday; Aberdare & Mt. Kenya in clouds. Drove on to Thompson Falls, thence through thorn bush cattle country to Narok. Saw 2 jackals, many steinbuck (?), in thorn bush country. ^{toward} Camped.

17 November 1965. On to Narok. Rainy midday. Streams high & muddy; roads muddy. We went out in land rover with Peter Mann-Jones, young professional hunter. He was to shoot eland & ^{zebra} ~~ostrich~~ damaging crops along road toward Isiolo.

He but hunted in grassland w. scattering ephesas & other trees,

Journal

17 November 1965

Nr. Nanyuki, Kenya

and shot only an oryx. I saw about 4 p.m. at about 500 yds. a large leopard, in stalking walk at edge brush in grass. Probably came toward oryx carcass or descending vultures. About 20 were in trees or ground near carcass by time we reached it, perhaps 20 min. after shot. Peter went after the leopard but did not get a shot.

18 November 1965. Still rainy, so proceeded to Nairobi. Visited

A. Harthorn in vet school (attractive modern buildings), as well as Dr. Monte from Davis, Dr. Uddall from Ft. Collins, Dr. Paul Martin from Univ. Divy. at Leakey's lab.

19 November 1965. More visiting. Ticket & inoculation business.

20 November 1965. About 10 rock hyrax in pen at vet school, nr. Dept. Zoology. Sayles (sp.?) studying them.

21 November 1965. Sunday. Went with Leslie Brown & Alain Belle to visit site crowned eagle, martial eagle, & other nests near Embu.

22 November 1965. Departed Nairobi. Camped nr. Manyara, to ^{south} south

23 November 1965. Drove to Arusha. Visited John Owen. Then drove toward Serengeti & camped nr. Ngorongoro.

24 November 1965. To Serengeti, Serengeti Park. Camped.

25 November 1965. To Olduvai Gorge. Then part Ngorongoro and camped nr. Lake Manyara.

26 November 1965. Drove toward Nairobi. Stayed at Hopcraft ranch near Athi River

27-28 November 1965. Stayed at Tigray private center near Lemuria.

On 28 (Sun.) climbed Mt. Longonot & viewed crater.

29-31 November 1965. Went stayed at Hopcraft ranch (Kenyablia).

Saw Thomson gazelle, Grant's, giraffe, hartebeest, jumping hares.



Journal

1 December 1965

Kenplains Est., Athi River, nr Nairobi, Kenya

David Hopcraft showed us 10 acre + 150 acre pens for holding gazelles. ^{10 acre} 6 in pen had been killed by jackals (?) in night. Now trying to catch more in big net corral. We saw loose herd 30+ giraffe, & near them 25 eland ^(NSF-sponsored) on the ranch. David now 6 mos along in proposed study of tanneries-cattle competition, tho he seems to know little of either animals or range, on 3 yr. \$60,000 NSF project (Cornell).

2 December 1965. Departed Nairobi about 4 p.m. on Air India to Bombay. On to Bangkok Dec. 4.

4 December 1965. Arrived Bangkok. Went to end of IUCN meetings at K. Univ. Departed on bus for field trip to Khao Yai Natl Park. Returned to Bangkok on Dec. 6. Heard gibbons calling in park, esp. in morning, but saw none.

7-11 December 1965. Visited Dr. J. T. Marshall at Seato med. res. lab. also Dr. N. Negus, working on Tupaia and Hylalates reprod. Saw tupaia colony in small cages; about 50 raised so far, some with ♂ left in cage (2 nest boxes). Animals larger than the T. glis we have in P.R. from Kuala Lumpur. Visited malaria research sta. at Pro Buddhalat, about 2 hrs. from Bangkok. 15+ gibbons in large cages. No reprod. yet. Said have ~~succeeded~~ succeeded in infecting splenectomized gibbons w. P. falciparum (several people at station have had malaria). Small town + nice small facilities. Visited + talked with J. L. Harrison, univ. Singapore, and w. Elliott Madure, bird man of SE Asia pathology project.

12 December 1965. Visited w. Marshall the open bellied stork colony up a river near Bangkok. Some storks mounting; 1 to 3 eggs in some nests; some carry twigs + greenery to nests. Tame birds, ideal for obs. Saw 1 ft monitor near river.



Journal

13 December 1965.

Bangkok, Thailand

W. Negev visited animal "farm" run by woman. In small yard many wood & wire cages including 200+ monkeys, 500+ fowlers, hornbills, other birds; bantams, civets, 200+ stumptailed macaques, 50+ pig tails + rhesus + M. crassus, 20+ gibbons, a few langurs, & others. Crowded, & a few dead in cages, but much help in cleaning & feeding animals. Many adult stamp & pigtails. Most ads. 1 or 2 to small cage. Seats lot buys here & thinks ~~one of better~~^{best dealer} about 50 Tupaia in single cage, most hiding under insulation on floor. On Dec. 11 (Saturday) morning visited market plaza in Bangkok. Included many live animals for sale: 10+ small gibbons, Presbytis, mouse deer, tree squirrels, tupaia, flying squirrels, parrots, cockatoos, civets, and others - apparently no restriction on this traffic, & many animals in poor condition. All Americans say that gibbons taken by killing mother, almost exclusively. A student, Miss Bertrand (French), studying Macaca speciosa in the field in S. Thailand, in area where they ^{come} to feed on rice crops.

14 December 1965. W. Dr. Negev, Peter Marshall, & others, visited island of 200+ acres off coast s. of Pattaya, about 2^{1/2} hrs. drive + 3/4 hrs. boat ride. Long sand beaches, coconut lined, & clear blue tropical water on mainland; much develop. for tourists + water slides. Island about 70' high, nearly solidly covered w. shrubs + trees, some to 80'. In seats lab-Delta private center arrangement, hoped to establish colony of gibbons here. I think island suitable, tho a little dry & trees shorter than usual gibbon habitat. About 1/4 mile offshore near Thai naval training school; pleasant area. Many more islands in the general area - single rocks to 1000 acres +.

15 December 1965. In afternoon took train to Chiangmai, arriving

Journal

16 December 1965.

Chiangmai, NW Thailand

morning, 1030. Visited zoo, where several species monkeys. One rhesus-like with reddish anterior back - 2 ft. in cage poked finger in our vagina, then licked finger, as if eating blood. Heard Young, director, said "rock macaques," found near rocks, & had heard they were M. assamensis. He said in one area there were "long tailed rhesus" monkeys too. He told of hearing various times of a large ape in Burma border area, groups up to 21. He had seen tracks, larger than his footprint, w. chimpanzee-like big toe at side. He had been 14 years in region, knew back country & hill tribes well, taught jungle survival to troops. Said much destruction animals through hunting; no gibbons now on Doi Suthep, where formerly common, or in areas where Carpenter studied (in Chiang Dao?). Thought disappearance animals from hunting rather than deforestation. His son born to move from Bangkok to Chiangmai soon. Heard heavy act, about 55, w. much loss but little scientific knowledge. Chiangmai next to hills with oak-like forest covering, a wetter zone above apparently. Undeveloped compared w. Bangkok. Fine university buildings, the univ. starting 2 yrs. ago. Stayed at seats lab field station, near university & zoo.

17 December 1965. Rode up to Wat Detungs, about 5500 ft., on Doi Suthep. Rain, clouds. Few birds seen. Returned to Chiangmai & train to Bangkok.

18 December 1965. Tried to leave for Australia, but plane overbooked so stranded in Bangkok. Put up at hotel by Pantai.

19 December 1965. In eve flew to Singapore, & eve of
 20 December 1965 ^{Then} flew to Back Perth, arriving very early morn. Rented VW combi. Visited CSIRO at Univ. (Ngo & Redlands), and Dr. Serventy, recently back from muttonbird banding at Bass Strait. Spent several days touring to S. of Perth, smoky giant Eucalyptus m. Pemberton, Cape Leveelyn (sp.?). Visited Eric Lodge at ranch

Journal

December 1965

Australia

near Bayup Creek; enthusiastic amateur. Spent night at Dryandra and saw "kangaroos not" marsupial. Returned to Perth. Flew to Melbourne & visited Dr. A.J. Marshall at Monash Univ. Then to Canberra, where stayed six days at CSIRO wildlife headquarters. Spent most time with Ken Myers. Took one trip of 3 days to the outback north of Broken Hill (Calderary area) and saw kangaroos, emus, wedge-tailed eagles. We shot rabbits for fun one night; all night job to get about 30. Stayed with Geoffrey Skinner in Sydney a few days (he joining U. of NSW). Then flew to Brisbane. Later train to Gladstone, and boat to Heron Island, where stayed Tues. to Sat. & saw many nesting green turtles, muddies, & shearwaters. Returns to Brisbane, rented car, & drove to Lamington forest near Binnia-Burns - a rain forest ^{unlike} not ~~not~~ Neotropics, with few Eucalyptus. Rain & cold. Descended to Gold Coast area for beach swimming. Then back to Brisbane & flew January 28 to Hong Kong. Jan. 30 on to Japan, where landed at Osaka.



Journal

30 January 1966

To Inuyama, Aichi, Japan

arrived Osaka 1405 on Cathay Pacific from Hong Kong, with Rolf, Carla, Kristi. Met by Azuma, Kayama, Kawamura. Taxi to Osaka, + train to Nagoya, local train to Inuyama. Dale Avery of NSF there.

31 January 1966. With Avery + Azuma, conferred w. Kawai + others at Japan Monkey Center.1 - 3 February 1966. Worked on accounts + work plans at JMC. Still no boat or shack built at Shinohita, wood built at Takago and Koshiria work going or planned. Azuma + Kayama had spent Nov. 16-29 in Tsugara Peninsula area, where latter saw monkeys in area nr. Kanita. No phenology done at Goggyusan. But nutrition samples collected once in fall at Takago, Shinohita, + Koshiria. Kawai had used \$1000 advance from me toward construction bldg. on Koshiria, where Yashiba working, so many other things went undone because lack funds.4 February 1966. To Nagoya + Tokyo by train. Correspondence, office work, shopping to February 8, when departed for Mori. In Mori Feb. 9-15, during which rain + snow every day except last. February 16, 1966, to Watarinosawa by train + bus. Then car to end road + walked to Kusodomari in strong cold wind. Azuma reported no field work possible until 15th. He had heard apparent monkeys N. of Taijohji valley, + fisherman reported seeing some on shore about 1 mile N. of Kusodomari twice recently, within 10 days. Monkeys nr. Kusodomari occur. in Jan. to 29th. Azuma says last fall Mori spent about 10 days looking for "5. troop" farther north and saw some. Weather instruments read at Kusodomari school since Sept. 1, nearly every day, by schoolboy. Azuma says fishermen say less snow than usual this winter, but ^{extra} 3rd cold snap Dec. & Jan.

Journal

17 February 1966

Nr. Kusodomari, Tomori-ken, Japan

With S. Azuma, walked K. to Kaijohji canyon, up to top of a
 & back to K. Snow 1-2' in canyon bottom; 4' on ridge.
 shed + 6°C. 1100, + 3° at 1300. Az. said saw 1 monkey to
 ridge; gone when I arrived. We saw 3 Capricornis
 red-brun crown, with half-grown young, st. 2-3
 yds. distant on open rocky point, looking at us,
 from them (azuma phalax, 35mm). Photoed some
 tree. Capricornis has many dry leaves clinging
 of Acacia (tree 24) for analysis; some bark es-
 prob. by monkeys, on brancher <1" diam. Bar
 section of 1" diam. trunk of small Pinus Thunbergii, down-
 wood, shape of cut bark , prob. monkey work. Also saw
 barked places, recent, on Kalopanax brancher, near ridge;
 brancher 1/2" to 1" diam. (photoed). Took various general
 views to show winter state vegetation. Only Cryptomeria,
Juniperus (small shrubs), and Thelypteris were green. Az.
 said local employee had been putting monkey provisions
 in Kusodomari, rather than Kaijohji canyon, so ineffective
 in keeping monkeys in Kaijohji. / The big trap never completed;
 brought to food shed area but no wire at ends, & now
 plywood doors swelled tight shut. / Wind today from NE,
^{near} shore water not rough, ^{one} could have looked for monkeys
 from boat. / Stayed Kusodomari for night.

18 February 1966. Hiked to Kusodomari & took boat to domonji,
 arriving about 1200. Stayed at Bei Yo Bo (ryokan).

21 February 1966. With S. Azuma (+ wife) took 0920 train to
 Muromaya on Tsurugane Penin. Visited Forestry Office. They sent



Journal

21 February 1966

Tsugawa Pen., N. Honshu

us by jeep to Minami-moto, forest station nr. Mesuhara, at about 1' snow there. Up canyon^{to 5'} & some snow & saw them but saw no sign monkeys. Azuma sa "never reported" a few times in canyon NW of Minami station.

22 February 1966. Walked 2.6 km. up road along Nishi-moto to experiment station, which not manned now. There's 5. up canyon walked last summer for about 2 km. in snow on skis. No monkey sign. Commenced snowing & colder, so returned to Minami about 2 p.m. Azuma had guesting people & said a logger said heard monkey over this winter up Minami-moto. So, no leads on location monkeys. At Minaya said some reports to Ueda last October, where Azuma last been at Minaya.

23 February 1966. Light snow all night. Skied down to Minaya on road, 4.6 km. Train to Choshi. Took 2020 train for Sendai

24 February 1966. Taxi from Sendai to Ibaraki (2500 yen). Then 0920 boat to Kuriyama. Cold but few clouds. Walked 5. along W. slopes of island, then back N. on ridge, & E. in vicinity hotel. No sign monkeys, tho possibly heard once. Stayed at the ryokan at the shrine. Girl or staff there said 4 monkeys in ^{shrine} shrine on Feb. 8. There were now 4 in cage (8' sq.), 1 old & on chain, 1 free ad. ♂ in vicinity of shrine.

25 February 1966. Warmer in morning; census station. Walked up canyon to E. of shrine & saw at least 8 monkeys over ridge. Deer - a group of 40+, many w. antlers shaved off, fed daily nr. shrine. Coats rough & ugly, & animals fat. Away from shrine some antlered bucks, some w. 4" spikes. Conspicuous long white



Journal

25 February 1966

Kinkazan, Miyagi-ken, Japan

Hairs of deer erected in alarm, & also hairs of lateral metatarsal gland. Saw 1 gp. of 3 pt. buck w. 2 spiky busters. Japanese say when deer & bucks of Aralia (spiny bush), antlers fall (March?). Mr. Akasawa very interested in monkeys & who works at shrine, away at present. Crows common & noisy. Small species sparrows seen, & a green woodpecker. Apparently no squirrels here. Saw one buteo, ^{gull,} ~~converging~~

26 February 1966. (Stayed at shrine ryokan last night). Explored for monkeys & encountered group near ridge just N + NW of shrine. saw at least 8 (see M. fuse notes). Returned to Shinomaki + Sendai, where visited Dr. Schlinger (vc Riuishi, geologist)

26 February 1966. Sendai + stayed at K. ryokan.

26 February 1966. Ayama visited Takahashi chm. (Dr. Kato in Sendai). + to Tokyo, + ^{Monday} next morning (Feb. 27) took train to Kazusamimoto M. Naito and taxi to Takagoyama. Mr. Naito, USIS photographer, accompanied me. Visited Dr. Muira & gp. 5, now caged in large enclosure but still $10\pm$ (all ♂♂ save 1 ad ♀) outside. Dr. Kawamura + Mr. Kayama also with me. Band on pen had 3 ad. ♂♂, many ♀♀ + imm. Most trees in enclosure dead + bark stripped. upper part ^{nest} the conifers in (some species barkless).

good condition. Tall bamboo green leaves. Monkeys seemed well fed + healthy. Leader had split R ear, red-faced. Muira said about 71 inside, + occas. one comes in over fence, about 10' wire mesh w. electric wire top"). Cage closed Oct. 1, 1965. Kayama arrived for studies Oct. 8. K. had recently collected samples vegetation + started to dry them. An NHK television man made brief film also visited area of trap A, where Kayama working mostly. of monkeys, Kayama, Kawamura, me. Returned to Seiva village.

1 March

28 Feb. 1966. With Kayama + Kawamura searched for least known part of band A, now said to be split into 3 groups.



Journal

1 March

20 February 1966

Takago area; to Tokyo, Japan

Local woodcutters told of seeing groups, in area where no monkeys before the groups split. Area about 4 km. N. of gp. & feeding area. Area of deciduous trees & shrubs, but some grass & forbs (^{eg} *Plantago*) green, & area of crop fields green. Also green bamboo, pine, cryptomeria. Some bushes w. new leaves. Some plums (?) in blossom. 5/10 overcast; warm. Apparently warmer & veg. growth more advanced in growth than Kinkazan. Back to Tokyo.

2 - 4 March 1966. In Tokyo. Correspondence, acts, shopping. Then train to Aomori, arriving morning Mar. 5. Then to Wakinosawa and ~~Kusasawa~~

Mar. 6, Sunday. Snow gone with warm rains except for rare patches. Visited Kaizuhama & saw monkey group, apparently intod. Windy & near freezing.

(SA 2. camera; 35 mm Kodachrome)

7 March 1966. Observed & photographed monkeys in Kaizuhama canyon. On shrubby *Hamamelis* (spell?), with dozen yellow flowers some bushes. Some low evergreen shrubs (*Azumaya sikkimensis*) on ridge apparently evergreen, w. red berries. On ridge W. of Kaizuhama canyon, leafless branches of *Quercus mongolica* bark eaten ~~mmmm~~^{toch maki}..., as if by mammal smaller than monkeys. Under melted snow patches, runways as of voles or shrews. Also found monkeys near feeding station & fed them

(searched about to N. in forest but saw no monkeys on 10 March.)

apples, say beans, wheat, & peanuts on 8, 9, 10 March. To Wakinosawa

11 March 1966 To meet Dale Arvey of NSF, Tokyo, with photographer (M. Naito) and USIS writer. Clear day with view of Hakkoda & Iwaki mts.; perhaps finest day of year, tho' windy on sea.

12 March 1966 To Wakinosawa, & by train to Aomori. Then on

13 Mar. to ~~Sendai~~, where stayed 14-21. Looked for housing.

Visited Drs. Kato, Tshii, ^{Yashioha} ~~Yashioha~~ in biology dept.

Met grad student Ko Ogasawara, tit population studies, who will help me at Kinkazan. Dry until 16, then rainy early morning.

Journal

10 March 1966

Coast N. Kusadomari, Shimokita, Japan

↑ out
of order

In 1½ hr boat trip along coast N. of Kusadomari, saw harlequin ducks, mergansers, gulls, bitterns, cormorants, skuas or puffins, and a white-tailed sea eagle. 3. To Kinkazan Is.

22 March

~~22 Mar~~ 1966. With Ko Ogawara & Rolf Koford to Kinkazan. Windy & overcast. Rained steadily all afternoon; no field work.

23 March 1966. Alto stratus, calm. Examined vegetation for signs

of spring - nothing notable yet in natural veg., but plums in blossom near shrine, + daffodils, + an evergreen shrub w. rose red flowers.

Hiked around from 0700 to 1630. First to summit + N. along ridge.

Dawn to shrine, back to summit. Via E. side trail to lighthouse, where got weather info. Then to forest shack. Saw 10+ monkeys about noon, but lost them. Deer still have antlers. Birds seen: Garrulus glandarius, Corvus leucomelanus + cornix, Chalcrocetes capillatus (2) and P. pelagicus, Dryobates kizuki (in pine), Motacilla grandis, Sitta europaea (Ko only), Regulus caeruleocephalus, Parus varius, P. major, + P. atrocaeruleus, Chloris sinica (flocks 30+ on ground), Passer montanus, Milvus migrans, Larus, Cygnus? Pandion?

24 March 1966. Windy + some ice but clear. To shrine, thence E, to ridge + N. on crest but did not find monkey troops. Back S. past summit, thence to shrine + took 1350 boat for Ichinomaki. Saw 2 ads. above shrine (solitary or?) . Saw + photos bark eaten, prob. by monkeys. There are fur filled droppings on trails (fox? badger?) occasionally, tho no carnivore tracks noted. No sign rabbits or squirrels. Saw lizard, + small mole-like mounds + passage seal places.

26 March 1966. To Tokyo via train. Confered with Dr. Avery, NSF.



Journal

28-30 March 1966

Tokyo; To Sendai, Japan

Worked on acts., notes, photos, NSF 5-yr. report writeup. Returned to Sendai via train in evening. / In Tokyo met Prof. Haslett and Dr. Imaiizumi.

31 March 1966. Confirmed w. Ko Ogasawara. Telephoned Terada on Kinkazan - he arrived Sendai Apr. 1 eve, & we conferred morning of 2 April. He had seen at least 30 monkeys in Kinkazan gp.

4 April 1966. Monday. Train to Ishinomaki, boat to Kinkazan, w.

M. Terada, student from Osaka. Arrived noon. Walked canyons to SE of summit, then N. ridge, but found no troop. Rain evening.

5 April 1966. Some frozen ground; cold wind but few clouds. We searched separately. I saw 1 and he 5 on slopes SW of summit, but we found no large troop. / Deer - some groups 3-4 incl. yearlings.

One 2 bulus together. One gp. 6 deer in grassland. Antlers still present, hard; start of rut? Found carcas ^{buck} about 200 m.

NE of Forest Cabin. Births must not be in spring (as in U.S.). / Rhod.

^{Leucothoe Grayana (var.)} the low common red-stemmed shrub has leaves to 2 cm. in sheltered places at 100 m. level; no leaves atop N. ridge. Carpinus nr.

Forest Cabin has elongated terminal buds, to 1 cm. - no life apparent in larch, beech, ^{chestnut,} Belkova, walnut. Alnus at hotel level, buds fresh & plump but no leaves. Brunnus tree - buds elongated about 50% beyond bud scale, nr Forest Cabin. On flats nr. stream in shade

on E. slope, shrub cabbage to 20 cm. (many). And now 2 leaves of "katahuri" (6 pointed pink star flower) frequent. So still only the barest beginnings of spring foliage. A Rosa (?) shrub

= Rosa multiflora with comp. leaves 2-3 cm.; + another shrub with fine ^{long} spines also stand nr Forest Cabin.

17 April 1966. With S. Azuma, to Kinkazan, arriving 1130.

Sci. names
Dr. Yoshioka,
hoku Univ.

Journal

15
14 April 1965

Kinkazan Is., Miyagi-ken, Japan

Stratus clouds. Phenology - Mr. Shrine, cherries in full bloom, + 5% new leaves on old trees. Hotel road (100m.), Viburnum erosum buds just bursting. On main ridge, 3-400 m., Quercus mongolica buds tight but not elongated (main big oak on island; few Q. serrata). Betula, Fagus, buds not elongated, nor Castanea, Juglans. Carpinus tschon. buds pale + to 2 cm long; slow but early start. Alnus tree (hirsuta?) w. stable + eaten (dry) along shrine - hotel road had leaves 2-3 cm. long, + an Alnus tenuifolia shrub had 3 cm. long leaves too. Leucotae nr. Forest Cabin, leaves to 3 cm. (but buds 1/1 cm. on N. ridge top). Aralia elata - new buds tip, 3 cm (eaten by man). One of shrubs on E. ridge nr ^{400m} ~~400m~~ with bark eaten = Frhania Sieboldiana (valvate buds); no bursting yet. Ayuma thinks other ^{much} eaten shrub there is a euphorb. Common on E. slope, judged by old dry leaves, as Acer diabolicum, Acer palmatum, and Kalopanax ricinifolius (Araliacae; young leaves edible said Dr. Yoshikawa). He said Ace mono rare on Kinkazan. / ^{Deer} Deer - Terada found a shed antler; I saw brush w. only one 40cm. antler, + found ^a shed antler Apr. 16. I saw a 6" spike w. 2 ♀s and a yearling. Also a spike + older brush together; a crow stood on brush of smaller, which showed no alarm when crow flew off. / M. Terada had been looking for monkeys daily + thought them somewhat tame toward him. On basis obs. one day, he now thinks 2 groups of 3-4^t, as he saw one gp. above hotel + later a gp. to W. of ridge 1 km. farther S. Also he says a gp. of 3 or 4, + 2 solitary males, sometimes in Shrine - Hotel area. He had seen the infant again too. / Of the 4 in cage at main Shrine, big ♂ right ear ^{an} C; others ♀ (?) .

M. fuscata

Journal

16 April 1966 Sunday

Kinkasan Is., Miyagi-ken, Japan

With Ayuma & Terada hiked over area W. of S. Ridge, then to top ridge & back N. Saw a few members one group monkeys. Rain to 11 a.m. Late afternoon I to summit & N. ridge but saw none. I think 2 large bands monkeys improbable. / notes for 15 April. / also see M. fuscata /

17 April 1966

Collected Fagus twigs & bud sample at 400m, N. ridge. / $\frac{1}{10}$ cumulus today.

I spent 5 hrs. searching for monkey troops, without success. //

The greenish iridescent Geotrupes (auratus or oshimanus) dung beetles were common on trails, tho I saw none rolling dung. Back to Sendai.

21 April 1966. Took train Sendai to Somoni, & stayed overnight.

22 April 1966. Boat to Wakurasawa; windy from SW. Hiked to Kurodonari and Kaiyaki canyon. Met S. Ayuma there; he had not seen monkeys today. Examined vegetation & phenology. Fagus buds bursting!

23 April 1966. Examined plants; no monkeys came to Kaiyaki. Windy. Saw one woodcock in Kaiyaki canyon. Set 5 traps for rats in forest.

24 April 1966. Min. 6°C . in Kaiyaki shock. Wind stopped, but occas. sprinkle. No monkeys to Kaiyaki by 0730. Traps took 2 Apodemus speciosus. Conferred w. Ayuma - he got no primp. records for Nov. thru Feb.! Hiked to Wakurasawa. Bus to Amagase, train to Sendai.

25

26 April 1966. Train + boat to Kinkasan. Foggy, windy. Terada said now 2 infants of monkeys. Hiked + hrs. but saw none.

27 April 1966. With Terada found + watched monkey group near main ridge.

Clearing & wind dying morning. At least 2 inf., possibly 3. Fagus not yet w. burst buds - barked time at Kaiyaki! Oak, Acer palmatum, Carpinus, Fagus, in state similar to Kaiyaki. Aralia more adv. at Kinkasan. See M. fuscata notes for phenology details. / Crows - saw 2 carrying 12 \pm sticks in bill, as if starting nest. Deer - groups 4-6 does w. fawns + yearlings

Journl

27 April 1966

JAPAN
Kinkazan, Miyagi-ken

common. At shrine one ♂ w. 10 cm new velveted antlers w. fork. But away from there, saw 2 ♂ w. both antlers hard & 2-3 points. Saw a blue backed (tanager?) in beech forest. Saw bugs ^{isopods} out now; saw 2 snakes (colubrids?) about 4' long, one frog (3 cm C-R; ^{Nyctid?} ~~bans~~), other insects besides Gastrupes. / Lower part of Pillar canyon, about 50 M., apparent A. palmatum w. buds to 2 cm but closed. About 100 M., same, apparently, w. 4 cm. leaf blades, & some Carpinus w. well-formed leaves to 7 cm on small tree (other sp. of C.?). Perhaps canyon warm, as narrow & rather rocky, a refuge for monkeys in winter. / 28 April, Prof. Toshioka helped identify plants, at Sendai.

29 April 1966. To TOKYO to catch up on accounts, correspondence.

4 May 1966. Train & taxi to Seiwa-mura, Chiba-ken, where met Kajima and inspected progress. 3 infants born ^{March} ~~April~~, of about 25 ♀. Veget. devel. ahead of Kinkazan. Copied weather data at Mishima.

6 May 1966. Again to Seiwa, with Prof. Nishida of Chiba Univ., who was an energetic field man, specialist in ferns, well acquainted with Takago flora. Returned to Tokyo.

12 May 1966. Train back to Sendai, Miyagi-ken.

13 May 1966. To Kinkazan, alone. Checked phenology. Saw but 2 single monkeys. No fog or rain. Found freshly shed antler, but saw deer with folded horns, another with 10 cm. spike atop basal hair. Phenol. - Oak, Quercus, acer, Magnolia, Zelkova, Carpinus, & most Fagus now leaves out, tho some Carpinus & Fagus still in leaf bud. Flowers toddler on Juglans.

Conspicuous clumps pink Rhododendron in flower.

14 May 1966. Hiked around, & saw but 2 single ♂ monkeys.

Journal

13 May 1966

Kinkazan Is., Miyagi-Ken, Japan.

Collected plant spec. Heard cuckoos, grouse (?) hooting; saw flycatchers - more variety small birds than before. Frog voices common in stream (fresh water crabs here too). ^{Unsuccessful} ~~Unsuccess~~ in trapping moles (2 traps only). Back to Sendai.

Itn.: 0630 Cabin Pass, → summit → mt. Shrine 0820 → summit 0850 →

Heaven Pillar 0945 → Cabin Pass 1130 → back 1330. / Crows strident; roost, wind. ^{NE}

17 May 1966

To Kinkazan

With Ko Ogasawara and Dr. Yoshioka, to Kinkazan. Dr. Yoshioka helped identify plants. They returned to Sendai. Ralf & I stayed overnight. (s. of Cabin Pass)

Found squirrel monkeys area of S. ridge, espec. w. side near top.

18

18 May 1966 Left Kinkazan 1400; returned to Sendai. / Deer - I saw one gr. on S. ridge main peak with 3 foaled does (head), 1 10 cm spike, 3 does (at least 1 sq.), 1 yearling = 8. Doe nearest me gave "eep" call, opening mouth, & took high slow steps → me, repeating whistly call. Another place saw foaled does + doe. Mr. Hashigome saw buck in velvet, w. 10 cm. antlers. The fat one sitting on hillside also in velvet, w. foreshortened antlers to 20 cm. So well fed over in velvet; wild w. head & antlers. Deer food - heavily browsed in Rhododendron kaempferi, V. erosa.

Lemna & Zanthoxylon not browsed appearance. Started Fagus, some w. leaves, some still lind, to 30 cm. tall on N. ridge in Lemna. At one site in Scirpus woods (10 m tree) saw 8 cranes, some on ground, fairly tame (approx. to 10 m.) crane?

23 May 1966. Train Sendai to Tokyo. Office work.

25 May 1966. Train to Kisarazu, taxi to Seino, where met Kayama.

We visited troop 5 at Takayagawa, where 10 info. known to date. Then to Kamogawa.

26 May train to Tokyo, Nagoya, Inuyama. And on

27 May conferred with M. Kawai at JNC. Then to Nagoya

Journal

27 May 1966

and Kyoto, where conferred w. Suzuki, Sugiyama, Miyaji, Itani at Univ. Then on train to Koshien. Furuya joined me.

28 May 1966. Arrived Miyazaki 1345. Bus to Kojima, arriving 1645. Short visit to island with K. Yoshida. In troop of 59, one birth so far. Birth season a little early this yr. at said localities, apparently. Some on Koshima w. crown molted.

29 May 1966. With ^{Furuya} ~~Furuya~~ by taxi to Tomisaki, but did not find monkeys. Rain and wind early morning. Returned to Koshima and again to island. The concrete lab building on island complete now. ^{first} /5.A. reported birth Kajiki gts. of May 28 (♂ Tora).

30 May 1966. Short visit to island. Then bus, train back toward Tokyo, where arrived 31 May. Evening, on to Sendai.

24-5 May Half overnight at Kinkazan. Heard monkeys S. ridge area but saw none.

To. Kinkazan, Miyagi Pref.

7 June 1966. After days overcast, fog, drizzle, clearing. Leaves full. Magnolia and Cornus in conspicuous flower. Rhododendron kaempferi blossoms mostly gone, while R. japonica in bloom. I saw 10 monkeys, but not whole troop (as few mins.), including infant. Eating leaves Lysimachia and Berberis.

8 June 1966. Another fine day, but found no monkeys by noon. Returned to Sendai.

10 June 1966. To Tokyo to confer with NSE, Ozuna, and JMA (meteorology). Returned to Sendai. Most days overcast now, but cool.



Journal

7-8 June 1966

Kinkozan 15.

Dozens of black (& occas. yellow) swallowtail butterflies, at Rhodod. leucanthemiflora shrubs (falling flowers). Saw swallows and black swifts over higher parts island. Also 2 ospreys in same area (S. & E. of Colin Pass), both days. ~~Deer~~ - at hotel on lawn, eating garbage, antlers to 3 prongs & 50 cm. Some higher on slopes with shorter new antlers. But I saw 2 with freshly shed antler stubs on ridge (250-350 m.), and 2 spikes w. old hard antlers about 10 cm. No fawns. On ridge, some seen to have molted sides, the shoulder hair old. Two bucks together. One buck, w. stumps, w. 5 unattached on ridge.

To Tokyo and Izuyama, where stayed at Furukawa about 10 days. Departed for Honolulu from Tokyo about June 25, & to San Francisco June 29, 1966. In Izuyama, mostly gathering weather, birds, and vegetational information, preparing plant specimens and associated data, getting Kayama & Aoyama to assemble labeled set of photo prints.

N.S.F. project in Japan continued to Dec. 31.
Co Data sent to me in Calif.

END

37.5.73

Koford, C.B.

Catalogue

1965

#3000 - 02

Uganda

Koford

Specimen Catalog

1965

Kigami Tea Estate, Km.E. Km. S. Ft. Portal, Toro, Uganda, E. Africa

3000 ♂ Cercopithecus ascanius nictitans

Shot by Wm. Pridham on ground eating crops. Broken calvarium.

29 Aug. 13 Km. E. 5 Km. S. Ft. Portal, Toro, Uganda, E. Africa. 4700 ft.

24 Aug. Red-br. nose.

3001 ♂ t. 27x13. Mouse

340-191-31-19, 19 gms.

Daylight, 5' above ground in roadside bushes, in Kibale Forest.

Toro Game Reserve,

Semiliki Plains, 18 m. N. 6 mi. E. Ft. Portal, Toro, Uganda.

1 Sept.

3002 ♂ t. 5 mm. Barbet.

stuffed w. paper.

5 Sept.

[Pridham's turnoff]

Kibale Forest, 7 mi. E. 3 mi. S. Ft. Portal, Toro, Uganda

(KAK measured)

KAK No. 1
(Kristi A.
Koford)

CMK No. 1

14 Sept.

♂ t. 17x9. Dark mouse.

195-97-27-16, 41 gms.

Forest floor in disturbed second growth, near edge; dark, damp.

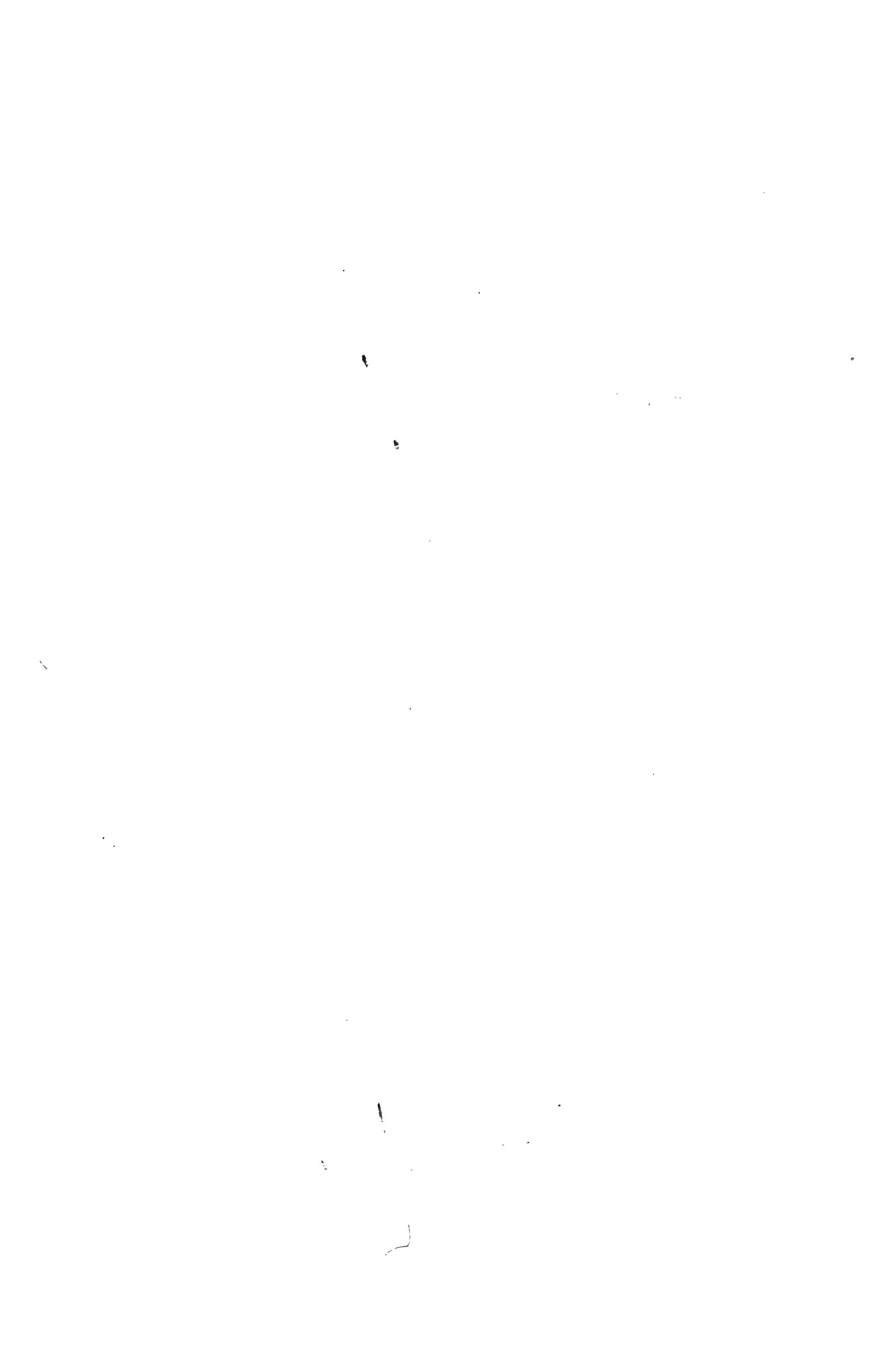
meas. by Carla K.

♂ t. 16x10. Large sand mouse.

343-183-41-27, 100 gms.

3037

- then Peru, July - Sept. 1968



Koford, C.B

Species Accounts

Primate Studies

1965 - 1966

Japan

India

Uganda

Koford
1965

1.

NSF Project.

In Japan 21 June - 1 Aug. 1965
30 Jan. - 2nd June 1966.

Macaca fuscata

(N. Honshu)

23 June 1965

Kusodomari, Shimokita, Japan.

About 2 p.m. walked up wooded valley of K., nept N. of Kusodomari town, with S. Azuma + C. Nagel. Beans in small plots near bottom. Newly cut trail. about $\frac{1}{2}$ mile up came to 6×10 shade in shade large *Thujopsis* or *Cryptomeria* trees, + there met Macaco Otakio of JMC. Some monkeys feeding from flat box of wheat, + others nearby. Some ad. *Medialanaria* crowns of a few conspicuously molted. Saw 8 at once, including 2 ad. ♂, + 2 ♀ w. infants. One letter within 20' of us at time, + one charged near me (6-0') when I tried to eat apple. Trees in canyon: *Thujopsis*, *Cornus*, *Acer*, *Fagus*, *Prunus*, Chestnut, others. Low chestnut in flower. Big tree to 60' or +. One 3-yr ♀ feeding, bare, with patch lost hair ~ side; only one in poor condition. Azuma said now: ♂

ad.	4-5	3	2	1	Int.
2	2	0	1	2	3
					10
					23 total.

♀ $\swarrow \searrow$ 3 0 2 2 13

Saw 10+3 wif. at once within 20 yd. space + within 20 yds. observers. Azuma said local people started feed last Oct. He came May 20 + found fairly tame. Since June 13 provisioned regularly this site. ^{Dom.} _{one} ad. back $\frac{2}{3}$ molted. Only now starts to accept wheat. (Food nearly gone, + Az. worried that might start to eat crops.) Az. says they strip Cryptomeria bark; that eat ^{conifer} ~~coot~~ winter. We walked upstream + L. slope into shaded forest with little undergrowth to tops of ridge, where Az. thought might provision. He had previously seen + fed monkeys there, about a mile from + 500' above down feeding site. Prob. trail could be built. We suggested building cross feeder for feeding, installation weather instruments, + enlarging small house for sleeping.
sea \downarrow ^{crops} \downarrow ^{home} a prov

Macaca fuscata

1 July 1965.

Ko
Shodoshima, Kyushu, Japan

K. Yoshiba says monkeys on Shodoshima breed early, & also two groups transplanted from there to N. & E.; indicates some genetic basis? - or carryover of early cycles, which might get later in time. /

Koshima - 18 mature ♀♂; 3 born so far. First birth to highest ranked.
(it's mother w. infant)

No young, as all inf. died last yr. (dog? killed); only one body found.

Cooler this summer than usual. Once a monkey, ad. ♂, to mainland
it returned

opposite; 4 yrs. later back to island. Largest ♂ about 12 kg. (weigh
by feeding or scale). Stunted - some ad ♂♂ have pelvis permanently
shortened down posteriorly; 2 yr. olds only about 6 lbs. / Fed by scattering
grain (+ other) on ground, where monkeys eat sand as well. Given a barley
& pea mixture today; much crushing & not greedily relished. / On island
about 1:30 p.m., & soon 17 monkeys near us, very tame & slow.

Long legged & slow moving compared to C. S. abeae. Hair darker &
shorter than at Shimokita. But stage molt similar - many with
medial anterior crown molted. One said to be 6 yrs. old I est. at 10 to
12 lbs. Breed season similar to Takasaki, perhaps slightly later,
tho T. animals have better nutrition. Some molted forearms &
scapular area too. / I saw one eat yellow soil 10' above sea level;

Y. said at Takasaki eat soil in 2 places & lick certain rocks.
July 1965. Takasaki xens

At Takasaki about 5:20 p.m. Dirty run down appearance; a few monkeys
nearly to R.R. tracks on road. Yoshiba said now 3 bands of about 92 -
180 - 720. Last yrs. formed 1963. Last good census c. 2 (marked w.
paint). Inf. now larger than at Koshima. Some ads. w. molting
crown, as at K. About 50 feeding; Y. said these peripheral members; teeth
closed for day.

Shodoshima, of Okayama, Japan

3 July 1965. See notes in Journal re Shodoshima monkeys.

Macaca fuscata

3 July 1965.

Shodoshima

Mr. Takao said fed about 30 liters water a day, & 40 kg sweet potatoes. (I est. 140 lbs. for 250, which is a lot). Visitor feed much, give no food; none on Sundays. Takao said no regular weather sta. on island. / Takao said some ♀ had 2 deformed babies, lacking hand or foot; another one lacked little finger. Teratism. / Of 4 ♀ born last yr, 4 survive, said Takao. Y. says counts sent to JMC regularly. Small gp. wait at distance while large feed, T. said. / At ft. of "rope way" of Kankake, we saw another group, but no regular program feeding or study. Station mgr. fed for people. He thought about 150, & about 15 wifs. When food put out, I saw about 80, incl. 8 wifs. Large & in good condition. Apparently birth season similar to better fed gp. / Monkeys had been in "park" up slope, but ran out of money, so unmanaged monkeys now by former station. No molt apparent in most; a few ♀ still molting. Pcsso. 2-3 yr. old has pink sex skin above each scrotum. Occas. ♀ has "necklace" red sex skin, w. gape, from clavicle to clavicle --. Neither seen on C. S. monkeys. / I saw 2-3 ♀ & 10 wifs. / Another unfed gp. said to be ^{on} NE peninsula of island.

4 July 1965.

Gaggusan, nr. Takahashi

Slope about 200 yds. above RR track, 500' above level river. Flat area for monkeys, pool, 2-3 rock walls w. various terraces for monkey feeding, & shaded benches for people. Clean & orderly, with intended energetic buyers. About 100 said to be in gp., & another unfed group in forest up-slope. A third gp. had been removed, almost entirely, to Shibusawa. Monkeys large, pelage good, & many too tame & boisterous. Molt in progress; morning. than C. S. horses. Some on ant. medial crown only. ♂'s molted crown, forearms, mid. back; ♂'s similar. But one, said to be well.

Macaca fuscata

7 July 1965

Gagusan, nr. Takashishi, Henshu

slightly

5, w. upper parts 9/10 molted. Molt behind time of Shodosh., + births later. Births: 1964, 10 Apr. to 25 May. 1965, 20 April start + 2 still pregnant, keeper said. (Furuya has been observing here.) 30 born so far this yr. Feeding soy beans + wheat. About 25 x 100 yds. slope cut shot; another 100-200 yds. up slope more grown up, + large forested area above. A clean 10 x 20' pool for monkey play + drinking. Some isolated large walnut (light green terminal leaves) and ^{red} pine. / Studied here about 6 years. Elev. perhaps 500' or +. / K.Y. said that when part of a group caught, rest did not join another gp. (but in P. entellus in India, when ad. ♂♂ removed, rest of gp. joined another. / Y. said this year 3 born lacking finger or toe.

Journal

(p.g. Osaka City u.n.)

7 July 1965. Student fr. Osaka, Mr. Koyama, will accompany me to Takagoyama & Kinkazan next week. Yoshiba said gpos. of about 140 and 80 there, plus 3 unprovincial troops. Tog Tokuda has observed there. Birth season not studied. / Kawai says ♀♀ with inf. molt later than others. But no one has particularly noted or studied molt in M. fuscata. / Furuya apparently had not noticed birth season M. crass on islet (Nagoya Bay) had become progressively earlier, 1961 to 1965; lumped ^{totally} indicated year round births w. 2 peaks. Yoshiba said M. cyclopis seasonal births on second islet, Papio year around on third.

8 July 1965. Shopping for egypt. Nagoya; train to Tokyo afternoon.

9 July 1965. Visited NSF office; still no NSF funds or word of them. Shopping + office work. also July 10, 11. Aguma + Koyama arr. eve 11.

12 July 1965. NSF office for mail. Departed 11:30 train for Chiba City + Kazusaminato with Naoki Kōyama, Osaka grad. student.



Macaca fuscata

19 July 1965

Kusodomari, Shimokita, Japan

1520, shock in K. canyon, 9 monkeys plus 3 inf. / One ad. ♀ still w/o inf. (1 mm. white spot R cheek; scratch R nipple; mod. age); she had yel. ♀ (crown molted) which seemed to try to suckle, & she pushed it away; saw (Somet. fed along. adult ♂)
 seen x. ♀ barely started ant. crown molt. / Apparently oldest ad. ♀, w. inf., slight molt crown + new patch lumber (+ 2 small punctures), thin fur chest, & ear L^+ -notch. / A yr., w. back $\frac{1}{2}$ molted, held and handled inf. / a ♂ 3-4, back $\frac{8}{10}$ molted, with crest on crown. / Adult ♂, back molt $\frac{9}{10}$. / ♀ w. ♂ inf., molted crown, forearms, & sacral. / ♀ w. inf., crown molt just started. / ♀ 3 (?) yr., back $\frac{8}{10}$ molted; rs. above esch. call. bright pink. / One ♀ had inf. + yel. with her. / ♀ w. ♂ inf. & inf., crown molt just started. / Yel. ♀ w. crown molted. / Inf. climbed on back of 3 (?) yr. old & rode it as if willingly. / About 12 seen at once, incl. only 1 ad. ♂ and 5 ad. ♀♀. ♀♀ left a few at a time, walking up N° . slope to N. of stream. At 4:40, rather dark in shade of Thujopsis in canyon bottom; & remaining, incl. ♀ w. inf. & 2 (?) yr. old, her crown & forearms molted; incl. 3 (?) yr. & younger ones feeding in bushes, the peanuts prob. exhausted. I left & returned 5:15; all gone, but heard one call on slope to N. / Trees: some Cryptomeria, prob. planted. Hippocrateum w. 1" fruits on stalks $\frac{1}{2}$; scit tree thus. Elderberry bushes w. $\frac{2}{3}$ mm. red berries, canyon bottom. Juglans (?), foot-long hanging strings seeds; comp. leaf.

15 July 1965.
 Rain after midnight; no monkeys at feeding area by 7 a.m. Left; returned 4:15; none, but came about 5:10. By 5:30 at least 10, incl. 3 ad. ♀♀. / See Journal 15 July.

16 July 1965. Heard night, & 7 a.m. (see Journal). Left; returned 1510 & watched groups. All 4 inf. played together in grass. Identified

Macaca fuscata

16 July 1965

16, incl. only: 1 ad. ♂, 5 ad. ♀, ♂ 3, ♀ 3, ♀ 2, 3 juv., 4 inf. (≈ 22 ♀). / ad. ♂ carries tail ^{white} curled forward against back. / saw at least 12 at once, not incl. infants. // about 9:30 a.m. ^{woman} said saw one

17 July 1965. Put food 7 a.m., but now took it by 11:40.

Ayama said saw on Kusodomari side ridge in morning. / Kusodo. side; about 3 p.m. crested ♂ 3-4 yr. + other monkeys by buildings at mouth canyon. / Food untouched at feeding area; ✓ blew police whistle + put more; monkeys came in $\frac{1}{4}$ hr. Windy. Departed.

19 July 1965. About noon set up wooden crop feeder at provisioning site. No monkeys came until about 5 p.m., when semi (?) solitary male came + fed watchfully. Anterior scutum nearly distal half, + penis less red than ♂ w. band. Still agrees that 3-10 yrs. old. He said formerly with the band as no. 2 male. This one climbed 20' up *Thyrsostachys*-Juglans tree + stayed there all night.

20 July 1965. About 7 a.m. ♂ descended + fed a bit, then left. No others came by 8 a.m. when I left. / In mid afternoon returned + found nearly all food gone, including the grain + soybeans in wooden food hopper. No others came by dark. Molt slightly behind stage of other male; many long hair lateral thighs. Male watchful, nervous. / Ayama's count:

	<u>Age</u>	<u>♂</u>	<u>♀</u>	
ad.	20+	1 (5+)	6	
	10±	1		
	4	1	0	
	3	0	3	
	2	1	0	looks like 1 yr. ^{incl.}
	1	2	1	(1 sex?)
In f.		2	3	(^{1 incl.} sex?)

= 21 total.

Macaca fuscata

24 Feb. 1966

Kinkazan, Miyagi, Japan

Cold ($\text{nw. } 0^{\circ}\text{C.}$); few clouds; mod. wind. Left shrine area 12:45, walked S to forest dist. but. Many Juglans nuts on ground, hulls of Castanea hulls of Fagus. Aleurites has attached reddish calyxes & strobiles. Ascended main ridge after shivering S.W. side isn't small over, returns & down to forest but. Saw no monkeys, tho possibly heard 500 m. SE summit once. Conifers green; moss on ground green, & rare clean short bamboo. Rhododendron (?) bush had 4 mm. tiny green leaves a short (1-2') bush w. red twigs common on slopes & evidently never cropped by the deer. Forest patrolman here, mouth said saw monk., only once - or few near his but - but he seldom to E. side ridge.

25 Feb. 1966. Warner; ci.-strata; no wind. About 10 am walked up canyon behind (E. of) main shrine \rightarrow ridge & at 10:45 saw 2 monkeys on ground about 100 yds. W. of fence (on ridge). appar. ad. ♀ & juv. ♀. They 50 yds. apart. Moved slowly. Picked in leaves & pushed leaves about as if searching for food. Heard monkey scratches 100 yds. N.E. of there, & soon saw 2 more on ground, 75 yds. apart. Walked slowly; picked in leaves under trees w. ^{fore} paws. Then saw 2 at fence. One stood on hind legs to look at us. One atop 5' fence (sign). A crow on fence flew at a walking monkey to 2'; turned quickly away. Ayama said he glimpsed an "infant," & saw it w. bad limp hinkily (Ralf also saw it.) I saw apparent ♂ est. 4 yrs., ♀ est. 3 yrs. Two crows flew at one; one landed close by monkey as if to get food uncovered, & monkey hurried away. Three monkeys in one gp.; Ayama thought all ♂♂ or - one larger than others. One of smaller mounted the other; repeated - and seen several times more in 10 min; perhaps not always betw. same 2. We went to summit mtn., then down ridge to 5 of monkeys. I then saw



Macaca fuscata

25 February 1966

Kinkazan, Miyagi-ken, Japan.

5 at once, incl. 2 grooming pairs & one ad. ♀ (red faced; appeared pregnant). Walked toward them at about 100 yds. distance they started off, a few at a time, walking slowly. Three more came up to ridge top from W., one being ad. ♂, ~~of ♂~~ one a ♀ w. a juv., one juv. The juvs. estim. 2 and 3 yrs. old. So at least 8 here, not incl. a limping ad. ♂. They went to canyon bottom & then too next appeared uphill atop main ridge on fence, walking N.; one in tree 20' up; one sat atop boulder. We departed to ^{shrub} area. Ayuma collected some droppings. Also piece of shrub ^{with} ~~oppas.~~ bark eaten, appar. by monkeys - Ayuma said it was Iloschidion obovatum (Euphorbiaceae); about 2 cm. diameter; trunk 10' tall. In all about 10 monkeys seen. Once heard "krooh!" call, apparently alarm at us. Ayuma thought 2 juvs., ^{1 ad.} ~~tot~~; 8 or 9, 7 ♀s in all, but I think not so many - maybe 10.

28 February 1966. Visited gp. 5 area at Takahoyama (Mr. Miura).

Most enclosed in 2 ^(?) hectare fence last Oct. 1, leaving about 15 outside (incl. 1 ad. ♀), said Mr. Miura. About 79 inside - just before mating these enclosed, no good "experiment" perhaps. (Kawamura saw first copulation in A troop about Oct. 17; he arrived Oct. 8). In cage, 3 ad. ♂♂. Broadleaved tree dead. Most tame & many take food from man's hand. Condition animals good. Rats plenty! We went to far side (-kulitsa) of mtn. & walked to hilltops where main part (83 est. by N. K.) troop A fed. Kawamura said, split to 3 groups (in 1965?), one part 37[±] to E, another in new area to S. The 37 gp. said to come to feeding area when large troop leaves. (Info probably from monkey feeding laborers there.) One

$\mathfrak{A}_v^{\mathfrak{B}}$

$\mathfrak{A}_{\mathfrak{v}}^{\mathfrak{B}}$

Macaco fuscata

28 February 1966

Takagoyama, Chiba-ken, Japan

ad. ♀ bleeding as if from vagina. No molt apparent. Two in troop said (by N. Kayama) to have formerly been No. 1. Fed lentils (or soy?) beans. Many acorns on ground - apparently fed to monkeys earlier but not relished. Two males with papilloma on lips (on Cayo Santiago only ♀♀?). NK said men said first birth about April 21 last year (K. does not entirely trust Mr. Mi's counts as ~~there~~ were more young in gp. 5. than were said to be born. On basis copulation obs. Oct. 17 by NK, expect first births about April 1. In gp. A feeding area, marked trees under study by K. are: Castanopsis cuspidata, Viburnum erosum, Q. serrata, Prunus ¹⁶⁰⁰sargentii, + Machilus thunbergii

7 March 1966. About 1530 I arrived feeding area in Kaiyabu canyon. Some grain available & a few monkey tracks on snow patch nearby. Put more food. (During winter local people tried to put food, but often put in Kusodomari canyon rather than at feeding area in Kaiyabu, said S.A.). Soon monkey group came, including 5 yearlings and both adult males - apparently no loss since last July! (Azuma departed December & returned several days ago but had not seen monkeys in Kaiyabu, tho in Kusodomari canyon Mar. 5 or 6.) Mutsu (male #2) after threatening me to 6'. Two ^{Yearlings} ~~and~~ (born '65) sat by an ad. ♀ at 2 sites. Grooming common. Ate soy beans avidly. Azuma said saw eating Acer mono buds, over 100 in $\frac{1}{2}$ hr., in Kaiyabu canyon. Tree 2A (a. mono) showed no apparent growth buds. Az. thought 1A (Juglandaceae) had shed bud scales. 10A (Hamamelis) had 2 flowers (Mar. 8); ^{some} ~~some~~ nearly had dozens flowers - first sign of spring in shrubs! Short bamboo, leaves mostly green.

Macaca fuscata7 March 1966

Kaizaki canyon, Shimokita-gun, Japan

Windy & about 0°C midday. To Kaizaki feeder 1000; no monkeys. Ascended east ridge to W. & saw scat on rocks, just to lee of top, for about 1 hr. (distant photos). To monkeys & found them tame in trees. Some ate one bird after another (Cornus?). (Photos here, Kodachrome & b&w.). About 2:30 p.m. gp. descended toward ~~canyon~~³⁵ bottom & went to feeding area. Mutsu slapped my leg occasionally as he charged. When I looked down into reflex finder he usually ceased threats \rightarrow me. Threw food in trap cage (Ayuma said that none would enter last fall) and one entered within 1 minute; soon 3 inside ($3' \times 5' \times 12'$ cage trap). On ridge branches Prunus w. bark eaten, but teeth seem too small for ^{monkeys} w/ s. ayuma. Warner. No precip. Some sun here.

8 March 1966. Arrived feeding area 1030; group already present.

(Hamamalis)

Much feeding on vine in tree W. of food shed. 10B, 1 flower starting (Ayuma could not find tree nos. 4, 5, & 9!). apparently all 21 (we departed 3 p.m.) present; Ayuma explained recognition marks & age estimator.

9 March 1966 Windy. Bp. at feeder 10 a.m. when I put out food. None there when I returned at 3 p.m.

10 March 1966. Calm morning early. 0915, none at feeder but food put 1500 yesterday gone. We hired boat & Ayuma & I went N. up coast about 0940 to 1030, searching shores & slopes for monkeys, but found none. To yellow cliff area, past where S. ay. said Ayuma gp. reported seeing gos. Stream & falls area ~~icy~~^{icy}. Back at feeder 1430. Group came, but not Mutsu. Masa ate wheat long, grain by grain. At 2 sites 3-4 yr. ♀ groomed yearling (sib?). Departed & departed 1515. Wind & rain evening.

11 March 1966. True snow night; windy. Ayuma to fdr. 0930.

Macaca fuscata

11 March 1966

Karasaki, Shimokita-gun, Japan

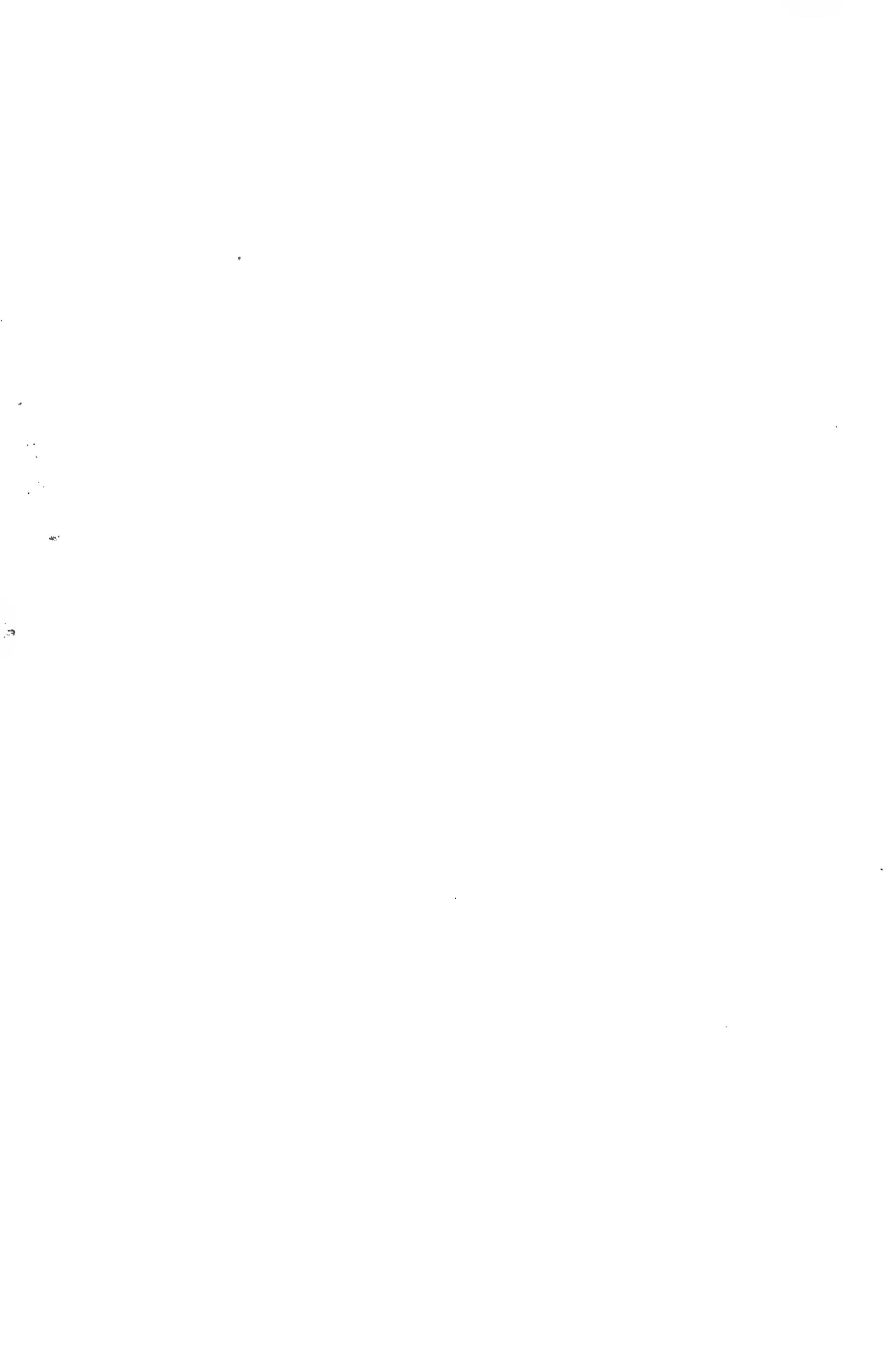
Gale Avery & others to feeder 1300. Gp. present, photoed by Naito. Matsu present. ♀ Itako gr. ^{Masue}. Some ate tips end green sedges on bank, incl. Matsu, Sugi. Hiba has 20 mm popillana at scar posterior R knee (); raw spot above pop. One 4-5 yr ♀ lies edge roof & takes apples from our hands. / after Ozuma, composition = : Osoe ♂ ldr. 20+ yrs., Matsu ♂ 9+ yrs.; ♀ ♀ in order rank - Buna 15+, Itako 18+, Momii 8+, Hiba 7+, Nara 1.5+ (no young yearlings), Kuri 6+ yrs. (smallest ad.). Others: Masue ♂ 5, Sasa & Tora ♀ ♀ 4(\pm 1), Udo ♀ 3, Ton & Fugu ♂ ♂ 2 yrs., Nezu & ^{- apparent orphan.} Sugi ♀ ♀ 2 yrs., 3 ♂ ♂ 2+ & yearlings. Last born later.

1 and 11 June 1965 (S. Ay.). SA says weighed all last fall!

23 March 1966.

Kinikozan 15, Miyagi Pref, Japan

Special. - plums in full blossom near shrine. Stand of 30-40' Carpinus? 50 yrs. s. of forest shack, buds ^{seen} slightly elongated & pale, succulent. Juglans, Castanea nearby, no damage, nor in Fagus, Carpinus on ridge, or Zelkova (scaly bark). Buds to about 3 mm long on low red-twigged common salal-like shrub (much browsed by deer). Moss & bases some gray green, & tiny leaves Rhododendron. Aleurites, on hotel, catkins elongated & brown - tanish. One tree on trail E. of shrine had tight new catkins (sp.?). (W. iron rail 1°). / at 3 sites a laterally extending shrub 10± ft. tall had bark eaten or dry monkeys on twigs 1-2 cm. diam.; photoed & collected. No other bark eating seen. Collected twigs & buds from Fagus & ^{Carpinus} T. (?) on ridge tho E. of shrine, for possible nutrit. analysis. 1° 930, I saw 2 atop ridge just N. of trail E. of shrine, on ground in dry grass w. Aleurites and Fagus tree; to site but found no



Macaca fuscata

Kinkazan Isl., Miyagi Pref., Japan

23 March 1966.

sign. At 1130, nearing crest E. of shrine I saw 1 ad. in tree (near where saw in Feb.). Then upon reaching ridge alarmed a group of 10± in bush trees just E. of crest; these ran to ground and off over ridge to N. One sat on ridge looking toward us (100 yds.). Ko followed them and again saw gp.; but they alarmed and ran N. again, well below & to E. of ridge. We searched but did not find again. / Walked S. of summit, then E. to coast + S. to lighthouse; later back same way to forest dept. shed. Saw none. Is there another group, or only the one of 10-20? What happened to 60-70 reported by Igawa in 1963? / No precip.

24 March 1966. Walked forest house to shrine + E. to ridge, then N., then I saw apparent monkey droppings, perhaps 1 mo. old, atop boulders of granite outcrop. / At 0830, soon after leaving shrine, I saw on ridge to N. of pool 2 adult ♂♂, apparently solitaires which come to shrine area, in rocks + grass. / If gp is only 17, maybe only 4-5 ad. ♀♀, hardly enough to justify much effort here. Monkeys not easy to see, however, as gray color similar to boulders, + tree bark, + usually on ground rather than in trees. Spring not so advanced as I thought it would be - perhaps plant phenology behind Shinobita.

7 April 1966. M. Terada had been here about Mar. 26 to Apr. 1 and had seen troop 30 or + in canyon SE of summit, + had found troop red tamar (see his notes). Today he accompanied me, + he will spend most of April on Kinkazan. / About noon he saw 3 ad. s. about 1/2 way between Shrine + Hotel, when walking trail; we thought these "solitary" males. / We walked over pass to E. of Forest Cabin and down to foot valley SE of summit, but

Macaca fuscata

4 April 1965

In open Fagus, found skull adult M. fuscata; old saw no one. To summit & N. along ridge to 1720 pm.; saw none.

5 April 1965. Searched separately & saw a few monkeys SW of summit. Cold, windy; some ice morning. / Terada showed me leafless vine-covered bush (in canyon E. of ridge E. of Forest Cabin), where he said 2 monkeys ate (droppings near). about 8'; spreading. / Low in canyon just S. of big ridge E. of summit (canyon of E. Cabin), many dry droppings in an angle of granite 8-10' high, about 200' up slope - a resting or sunning spot? → Rock also droppings on or near many granite boulders in this canyon. / I walked to summit & en route saw at least one on boulder in Miscanthus gross m. Albus on ridge W. of summit, about 300 m. level - I thought perhaps the "solitarius" seen by Terada yesterday. (These are bark-eater shrubs on this slope, & by same boulders many monkey droppings, so perhaps frequented.) / On far up N. ridge, searching, listening, but saw none; turned back S. 1000; again at summit 1050. Down ridge to E. 300± m., soil low shrubs, gnarled, spreading, with branches barked by teeth - at knots, & on small branches down to 1 cm. or less diam. in tops - probably monkeys. (Valvate buds, stubby). Perhaps started by monkeys. Most of same species, while others untouched. / Atop mossy boulder under Fagus-Carpinus, 50 yds. N. of Heaven Tower, 30^t droppings - sitting place? (Terada saw gp. pass near here once) / Returned to Forest Cabin 1310; departed 1430, & again to canyon below Heaven Tower, to summit, & back down in area SW of summit. (Terada said saw about 5, apparently including 2 juvs.; this canyon about 1630± hoo. Monkeys frightened, to next canyon N., & when he to ridge they

Food.

Food

Macaca fusata

5 April 1966

Kinkazan, Miyagi-ken, Japan

were on far ridge, to N.

6 April 1966. Clear, calm; no ice. With Terada walked W. from Forest Cabin at 0830 climbed stile at crest - alarm call 50 m. to W. + ad. ♂ ran. We stopped, watched, & soon saw at least 7, incl. 2 old ♀♀, one with tiny dark infant clutched to breast (alive; turned head up.). Prob. born since April 1. An unim. (Fyr.?) nr. other ad. ♀, 10 m. up a tree trunk (no foliage). Watched at about 200 m., the monkeys aware of us. / On slope 3 minns. (yearlings?) gently wrestled & romped. One, sitting, leaned back against stump as if to scratch. Occas. one to 2 m. up a trunk. No ad. nr. them. / One ♂ subad. - dark cheek; narrow bare pink perineum. / Orios. heard short "glump," scit-titter - prob. not alarm. 0910, about 3 yr. together ran across slope in dry leaves, going W. / An ^{2-3 yr} minn. walked down a slanting fallen log on ground; stepped, crowded, looked → us 200 m. away. (Apparent crest [♂]). 0920, adult ¹ walked same route, along top of fallen log - common path-way. Deev in same area; open Fagus - Carpinus slope. 0930, farther E., 4 minns. (3 or all yearlings) one on fallen log. One reacted up + pulled down branch tips + nibbled at it. A big ad. ♂ (leader?) walked across slope above them; one minn. shied away from him (at a start from him); a second walked within 1 m. of ♂. The group now 300 m. E. of rose. An minn. in tree descended slowly, met another on ground, & the 2 ran off together. 1005, ♂ subad. + minn. into creek bottom, going N., ♂ walking on fallen log top. 1008, slight alarm at observers at 150 m.; they had to S. up slope - ♂, yr., 2 yr., ad. ♀ (?), all in succession walk-

Macaco fasciata

6 April 1966

Kinkazan, Miyagi-Ken, Japan

^{another}
ing top of fallen log. (Another ad ♂ was 200 m. N. of them). / 1040,
ad. ♂ & gray & m. bottom (400 yds E. of pass), while 3 ad were
200 m. upslope to S. of them. (Some mout. prob. due alarm.) ♂ walked
slowly upslope, & 2 m. behind, another ♂ 100 m. behind these.
1115, I walked SE over sidehill ridge & saw ad. ♀ (6 yr.) and
an ad. ♂. 1130, ♀ (6 yr.) ascended leafless tree alone, slowly, on
a ridge. Little feeding. Shortly I saw an ad ♂ in the same
area. I cautiously approached - when I reached ridge, ♂ was
on next ridge to SW., & 200 m. down canyon on a dell & on a
slanting trunk gave alarm call every 5± secs. (Tyo, about A
above mid-C). Red feed; no grl. with, but 2 imm. ran
S. from area. / Composition estimated: 3 ad. ♂ (1 a subd.),
3 ad. ♀ (^{big brown} ~~gray~~, gray w. inf., younger one - probably 1 or 2
more ads.), 3 imm. (2-3 yrs.; one w. slight crest); 3
yearlings. / 1210, I left Terada to follow & study gos.

15 April 1966. Returned w. S. Ayuma. Terada thinks 2 groups
of 30+. (See Journal). We went to Forest Cabin, E. over ridge, then
N. past Hearn Pillar (1420) to summit, up N. ridge to Mountain Shrine,
back to main temple 1605. Stayed at shrine for night. / A young
man, Shuntarou Murayama, visiting island to start study
of effects deer on forest, but seemed to know nothing of
usual observation & game mgt. methods - looking for
damage by deer to trees, apparently.

16 April 1966. Rain to 11 a.m. We hiked area to W. of S.
ridge, where Terada recently saw large group, but we
found none. Saw 2 woodcutters & one. felled Japanese (?)

Journal

Info.

Macaca fuscata

16 April 1966.

Kinkazan, Miyagi-ken, Japan

tree that area. T. said he saw monkeys S. of Sancho Pass (shore line) on S.E. slopes once. / About 1330 from S. Ridge about 500 m. S. of E. Cabin Trail, I saw one large dark apparent ♂ in Fagus open forest, striding N. Shortly I saw one in next draw to N. Ayuma said he saw 4, but going N. We went to E. Cabin trail area but saw no more. I to area Heaven Pillar, summit, & N. ridge but saw no more. Prob. frightened the gp.

17 April 1966. I left shrine 0640 & went via summit to Heaven Pillar & down trail to E. Shach, then up (w. on) E. Cabin trail, but saw none. Later along S. Ridge & back N. on W. side - saw none. Back at Shrine at 1310. Terada & Ayuma had gone out short time but had found no monkeys. / Droppings - in an angle of granite blocks, flat dirt floor, protected, facing S. across a draw about $\frac{1}{2}$ km. S. of Cabin Pass, 100+, as if monkeys often nested there. One small but old pile in another pocket, completely overhung about 50 cm. up, same slope. Evidently gp. uses Fagus - Aleurites slopes $250-300$ meters up on WSW slopes. Kaizaki

22 April 1966 Kaizaki Canyon, Shinohita-gun, Tomi-ken, Japan

arrived about 1 p.m. Ayuma said 2° warm and much plant growth that day - Fagus crenata buds bursting, forks increasing in height. Deciduous forest had general leafless appearance, the ground granish with forks to 20 cm. high. (Pteridium?)^C to 10 cm. in clusters. Ferns and Aralia and Kalopanax, buds to 6 cm. ^(terminal). Acer now buds tight & elongated (green evanescent tips) about 100% at foot canyon nr. stream.

Brenner grayana most loosed shrub in canyon; leaves to 6 cm.

Fagus crenata - some mature w. buds closed, buds 2 cm.; others w. leaves to 3 cm. long, especially on high branches, on S. slopes. Nr.

Pheno!

Macaca fasciata

22 April 1966

Karzaki, Shinokito, Tomori, Japan

stream below 50 m. alt., Hamamelis leaves to 6 cm. Katsura common and in flower in open below 50 m (alt. of feeder). Canyavaria 5 w., & rain slope investigated four SE, so gets much direct sun - perhaps this is reason phenology seems no later than at Kinkoyan. A large Ulmus, not common (one S. of tree 2A, & below 6A) abundant new flowers (?). Stachyurus praecox, 2 meter shrub, now w. no leaves but pendulous yellow flowers ♀. Viburnum furcatum - shrub w. well formed 4 cm lvs. culled in ↗ (Azuma says first to turn purple in fall). Lindera shrub, leaves to 3 cm, 50% beyond bud scales; common understory shrub on SE slopes. Fraxinus Japonica - 6' shrub, bark eaten by monkeys, no leaves present (Fras. also eaten on Kinkoyan!). Tilia tree on SE slope, red buds turgid + 10% elongated, Crataegus tree (sargentii) may be same sp. as Kinkoyan (no leaves yet). Viburnum Wrightii shrub - lvs. to 2 cm.; understory on SE slope. Mallotus - shrub in cut over area; red buds, closed (also ^{pres.} on Kinkoyan). Morus - streamside nr. mouth canyon; buds burst + elong. 50%, to 8 mm. long (also occur on Kinkoyan). Carpinus cordata - buds elongated to 3 cm. but not burst yet. Azuma says monkeys seen eating seed esp. of new foliage, but not new tree buds! Common spp. w. Kinkoyan: Fernata, P. mongolica, P. sargentii (if same sp.), Mallotus, Morus, Acer palmatum, Juglans, Aralia, Calopteryx. + genera Ficus, Carpinus, Viburnum, others. Atop W. ridge too, Fagus buds bursting. On W. side ridge mostly Quercus mongolica, only pure stand; buds turgid, about 12 mm., not burst. (abortion?) Mrs. Azuma said Hiba ♀, formerly apparently pregnant, now w. abdomen not distended. S.A. says 2 ♀♀ in addition appear to be pregnant.

Macaca fuscata

23 April 1966

Kazaki, Shimokita, Aomori, Japan

Found monkeys. 2A, acer mono. Buds turgid, pale tips, elong. $\pm 10\%$.1A, Juglans, new leaves in bud form to 4 cm. long. 1B, Juglans, new buds in bud form to 3 cm. 3A, A. palm., buds elong. 100%, to 6 mm. 4A buds turgid, sticky, light green, 20% elong.5A, 1000+ leaves to 6 cm (w/o) 8 cm w. / petioles. 6A, buds elongated to 3 cm but not burst. 7A- buds turgid, not elongated; 12 mm long. 7B Buds turgid only. 8A, buds burst, 100+ on upper branch to 5 cm long; lower branches to 3 cm long. 8B On 2 upper limbs 100+ buds burst, 4 cm long; lower limbs, buds elong. to 3 cm. 9A - not found. 10A, leaves closed, to 2 cm.; flowers gone. 10B, a few flowers too. No monkeys come to feeder area all day, & none seen on slopes a ridge to W. Apparent recent feeding on bark of Dendrophorus on ridge to W. Windy; stately clouds.Kinkazan, Miyagi-ken26 April 1966. Arrived noon. Terada here since 21. I walked Shrine to Road about 50 m. asl.Hotel. Near Shrine, cherries in full blossom & 50% leaves. Along road, Corylus (many trees - to 2 cm., not burst), cordata buds elong. & many burst, about 3 cm. new growth; Alnus trees + shrubs, leaves to 4 cm. Betula - buds elongated 300% but still only 1 cm.long or less; essentially, turgid but not burst. Aralia stalks - leaves open to 10 cm. long. Viburnum erosum - 50% leaves, 1 cm. long. Some big Rosa multiflora, lvs. 3 cm long now. As general view, Alnus $\frac{1}{4}$ leaved, Betula 0. Castanea - few buds, but some burst, & leaves to 2 cm. (but many old dead buds; dead tree).Near Forest Cabin (170 m.?): Tagged Juglans, 16" dbh, lower part new petiole + leaf growth to 6 cm long; at top tree, buds elong. but parts not separated yet.W. side
50-100m.
asl

Macaca fuscata

26 April 1966

Kinkazan, Miyagi-Ken, Japan

Other large tree ($20''$ dbh), new lvs. to 8 cm long all over. Castanea - few buds; some new, green, 1 cm long, opening. Some other trees no apparent activity (diseased; poor indicator). Carpinus - on some low branches buds open & lvs. to 3 cm, but only elongated + 2 cm on most branches (this general condition on higher parts island). Tree 3A, 6" dbh, lvs. 3 cm in crown. Tree base start of grayish foliozed look. / I walked E. up Cabin Trail. Lamiastrum lvs. about 8 cm, almost full size (in leaves all over island, incl. N. ridge). Fagus #4, 15 m., 40" dbh, buds still hard, not elongated, no leaves protruding, scales tight - this is general condition throughout island - Fagus buds ^{burst} not burst, tho many burst at Kaizaburi! In same area Carpinus 50" dbh buds pale green + elong. but not open, while another 100' distant had lower part 1000 \pm buds burst into leaves 3 cm. (Variation in phenology among old trees + among branches of same tree). In gen'l, Carpinus buds elongated + pale green but not burst into lvs. By Cabin pass, same; Carpinus just starting to open, Fagus closed. Just E. of pass, Juglans buds smaller + elongated, with about 5% separated into 3 cm. parts (lower levels, mostly w. finger-like separation). At higher level, start Fagus, canyon wider + more open, Acer palmatum (green twigs) 10 m. 12" dbh buds turgid only, as at Kaizaburi (also on a large one near ~~iron~~ rail on path E. of Shrine about 300 m.). Another Acer (discolor?) about 200 m. 20" dbh 10 m lvs. 4 cm + open. / Again on W. side above Hotel, 100' m., tips of Abies branches w. 2 cm. bunch of new pale green leaf. Rhodod. laevigatum - buds + lvs each about 2 cm long; slow growth. Prunus (sargentii) tree - buds extend to 4 cm in closed leaf bunch; no open leaves. / At Shrine met Terada, who had walked around N. half island E-W. and at 1630 saw about 12

Fagus -
Kaizaki
ahead!

w. side
100m.

Macaca fuscata

26 April 1966

Kinkazan, Miyagi-ken, Japan

monkeys, w. rings. (Black one + red one); gp. B he calls it + still think there are 2 gpp. (See M. Terada note) tho I do not. Apparently a gp. of 2-3 separate in Shrine area, + a gp 2 ad. + min. often lags behind gp. B., according to Terada. / The old ♀ "Monks" at shrine died recently. Still in cage, 3 ♀♀ + 1 ♂ ad; none seems pregnant.

27 April 1966. 6 a.m.; I saw big ♂ at top cage of monkeys at Shrine; he ran up adjacent Thujopsis when I to 10 meters distance. 9/10 alto-cumulus; warmish. Walked up to Shrine canyon to Hachigome + out N ridge (to above where MT saw gp. yesterday), then back toward Hachigome, and about 0820 to SE of Mt. Shrine saw 2 adults, one appar. a big ♂ + other smaller + younger (subad. ♂?). These came to boulder on a sidehill ridge, + soon walked down slope under Fagus (slight alarm at me, 100 m. distant + above). I waited 5 min.; saw no more; thought only 2 there. Then near Hachigome I met Terada, who had seen ♂ + ad. + w. ring. He still had in sight ad. ♂ lying atop ³^{6 yrs.?} massive boulder, resting or dozing. Later he pulled a 60 cm stem toward + apparently ate at tip. Finally it walked N. along sidehill (prob. subad. ♂, which follows gp.; long red face). Then nearer summit, on E. side saw 2 lge. min. w. ad. + 80 m. behind, walking s. along sidehill. 0950, E. of summit about 40 m. level, 2 ad. ♀♀, both w. infant. Larger one reddish, astute; smaller, black, held close. These on dry leaf floor slope, watched at 100 m. 1010, SE of summit about same level, saw scat. + gr. yearling while 2 yr. lag alongside, on mossy rock. 50' from there, ♂ (w. red ring, which walked to 2' away) gr. ad. + w. yearling! So saw at least 7 (1 ring) not including ♂♂. 1025, 50' S. NW of these, single ad. (red face - ♂?) pawing in leaves.

Red

One inf. pulled + mouthed bent over lily (A). Inf. walked over boulders of

Macaco fasciatus

27 April 1966

Kinkazan, Miyagi-Ken, Japan.

supine yr. being groomed (prob. cousin rather than sib.). This gp. soon had 2 ♀, 2 yr., 1 inf. - so mother red inf. may have yearling. I sp. then: ♀ w. yr. + 2 yr.; ♀ w. 2-3 yr. old min. (= 5); 2 ♀, 2 yrlings, + red inf. (= 5), + single ad.; + 50' from these at gr. yr. These are well separated gpps., + no otoes near them. At least 6 ad. ♀, 2 inf., 4 yr., 2 2-3 yr. minns. / ♀ w. black inf. walked 100' from others + sat. Inf. well-ed to 1 ft. from her - she ate small green leaves from 40 cm shrub, pulling (stones) branches toward her. She gray, brownish sides, red face, possible light area over h. eye, crown darker (molt?). Hair thin or fine scragg, mid dorsal poster. thorax (Terada says white-nosed). Inf. picked up objects + put to mouth. She gave occur. "questioning location call," 1 sec., ↑. These only sounds heard from monkeys in 4 hrs! Inf. prob born about April 20 or before, judged by activity (so one Apr. 1-9, 1 Apr. 10-19). 1110, she gr. inf. which lay on back w. legs spread. She est. 8 yrs, not large & old. / Big ♂ sat by log 20' from another ♀; scratched his side w. hind foot, slowly walked SE. Calm; sultry, bright; alto cum. + cumulus. / A deer stood within 3 meters grooming monkeys; no apparent reaction. / By 1135 gp. had moved slowly off. ^(075?) Two came up slope to 50 m. from me. One fed, pulling bush tips toward (40 cm. ^{plant} tree); 1 cm green leaves. I sp. very loose it seems. When all but close out of sight, I cautiously descended Pillar trail on top of E. Ridge. Prob. slightly alarmed animals; they walked up slope + crossed ridge, and pausing on 10' boulder on way, + walked down slope to S. About 12, incl. at least 6 1-4 yrs. + no albus in otoes. I waited. About 100 m. behind others came 2 minns (about 2 yrs.) in fast walk, on a log, to crest + down to S. (As at least 8 1-4 yrs.) No more came in 5 min. Terada had gone down trail to S. atop

Macaca fuscata

27 April 1966

Kinkazan, Miyagi-ken, Japan

ridge. He said he saw 3 infants, the ♀♀ walking in succession, & that they had continued into E. Cabin canyon - a long nose; some alarm? (prob.) So evidently at least: Tod. ♀♀, 3 inf., 4 ♀ yr., $\frac{2}{3}$ ♀ imm (2-4), 2 ad. ♂♂ or; probably more - about 20 in gp. / Terada left 30 April. I talked w. him in Tokyo on May 3, & got his notes & maps. He denied only one gp.

9 May 1966

Takago-yama, Chiba-ken

With Kayama, at feeding area A, about 250 m. Molt - 2 ad. ♂♂ or, new hair central ante. arm, 4x6 cm. area. Also in some ♀♀; & occas. one w. new hair forearms. So molt started. Food - provisioned year round, but (under pressure) Kayama thinks about 20% natural in winter, 50% in autumn. In autumn food abundant & monkeys travel more, shake trees more (aggressive? or ^{poor} visibility?).

Pelage - short & scraggly compared to Aburahita. Ears prominent here. Some have faint striated "look to fur - transverse bands of slightly lighter color, ^{roughly} 1 cm. apart. / Births so far in groups A.

♀ Isa - 10+ yrs. - Inf. ♀ b. 4/14 No yr. /

♀ Yori - 6+ ♀ 4/20 No yr. /

♀ Muja - 6+ ♂ 4/24 No yr. - but 2 yr old? /

Feeding area A - about 2 mi. NNE of summit Takago-yama. Summit (Lake no. 2) might temper weather there! 315 m. a.s.l. Mishima weather sta. 4 km. E. of area A. Seiwa 4.5 km.

Takago-yama $35^{\circ}15'N$, $139^{\circ}-55'E$, 8 km. from sea (to SW). / Plant info
on ssp.
unlined sheets.

6 May 1966. Again visited Takago with Prof. N. Nishida, botanist of Chiba Univ.; identified plants & food items. ^{Cyat.}

13 May 1966.

Kinkazan Is., Miyagi-ken

I walked about 5 hours in monkey area but saw only two. 1326, 200 m. E. of Cabin Pass, 107 on ground on hillslope, alone. Picked

Macaca fuscata

13 May 1966.

Kinkazan, Miyagi-ken, Japan

at ground. Then at 1530, ♂ 5 yrs. old ?, on ground in Mesianthus on s. side of W. ridge, no crest. Climbed Castanea (?) + sat 10' up. Alone.

14 May 1966. Walked 0630 - 1230 in monkey zone, & saw 2.
(usual one of which)
0720, N side of summit about $\frac{400}{4000}$ M level, ♂ ad. in 3 m shrub,
eating new green leaf tufts (about 1/5 secs.). Straight stiff & dry.
III (or II ?), E + IV missing perhaps. Watched at 100 M. 0727 climbed
higher, soon lost. Barked new Fagus leaves on ground; ate
Fagus? Alone. Then at 1140, W. Cabin Canyon, 200 m. ^(w. of) below,
pass, ad. ♂ on tree branch, resting. Whined a few times, but
no alarm call. Alone. Watched at 100 m. Slight crest (or start
molt?). Red face; tested up. Climbed higher, & away. Now more
in trees than before? To eat new leaves? I did not see group.

17 May 1966

Kinkazan

Walked up ^{w.} Cabin Trail. 1230, 100 m. E. of pass, saw large adult, imm.
est. 3 yrs., ^{and} ♂ est. 4 yrs., on ground on sidehill. Then slightly alarmed
and walked ^{uphill} toward hilltop, when Ralf found them a
little later. About 1430 I to hilltop (s. ridge, s. of Cabin Pass) and
we heard much squealing, as if imm. being threatened or bitten,
on W. slope in area thick tree cover. We walked s. along ridge,
heard other calls. About 1600 I descended cautiously down to w.,
toward repeated ^{w.} short call, & saw ad. running ^{within} rhododendron clumps
50 m. from me. Difficult to see much area at once because of
foliage, tho many open sites under trees. About 1650 met
R., who had gone down slope to s. of me. He had seen ♀ w. infant
and about 4 apparent immrs. at once. 1700, heard single repeated
call ^{w.}, about high C, every 10± sec., & briefly saw adult. This

*Macaca fuscata*17 May 1966

Kinkazan Is., Miyagi-ken, Japan

in brush, oak, carmine, rhododendron area. At one flat spot near rocks I found 50 \pm droppings, as if favorite spot. Again I heard calls to S. & up slope, went slowly toward, saw none. To top ridge to N. of telephone line crossing, & then heard calls on slope to E., as if animals had crossed. Ralf thought that in all he had seen at least 10 individuals this afternoon. Calls heard at 1770, when we started back N. on ridgeline. Rhododendrons now in full bloom.

18 May 1966. Clear, light breeze. About 0630 left Cabin, & to road. Ralf went S. along ridge, I to N. I to summit 0745, then out N. ridge, turned back 0900, summit 0950, & back to via Heaven Pillar & Cabin Pass to Cabin. Ralf had gone out & back S. ridge twice, & heard & saw none. I saw none either. (We did not cross ^{down} Shabugashu canyon.) About 1130 from Cabin out telephone line to S. for 45 min.; but detected none. / Apparent new monkey feeding on bark Celtis near stream above Cabin; Kodachrome photos.

25 May 1966.

Serwa-mura, Kimitsu-gun, Chiba

Conferred w. Naohi Kayama. / For gr. 5. (in enclosure) he gave composition
adult mat. ♀♀ (5½ and +) 1 male 4 - 3 - 2 - 1 - Inf.

Oct. 65	ss:	6	26	+	+	6	"	18.
---------	-----	---	----	---	---	---	---	-----

Outside cage but apparently members: ad. ♂ and 3 imm. ♂♂. So 79 total. (K. says Mr. Miura says 2 inf. died, so perhaps 20 born in 1965). K. says in May 1965 only 65 (\pm 10) in enclosure. Apparently fence rather imperfect barrier. / Mr. Miura gave birth dates this yr. ss: April 9, 14, 24, 28, May 10 (outside cage), 11, 13, 18, 19, 24. I saw one w. drying placentae, prob. born 25. (Possibly he missed one more.) The animals enclosed early Oct. '65, but most soon escaped. But in agout, most stayed. Fence cyclone wire about 8'; then bends

Macaca fuscataTakagoyamaSekitoyo

Chiba-ken

25 May 1966

with steel single wire, electrified  area 1800 tsuka ($3.3 \text{ m}^2 \text{ sa.}$) said Miura, on slope with tall bamboos (green leaves) and many dead or nr. dead trees (pines included). One ♀ w. inf. outside fence. Scril ♀ & w. molted central crown, + some scapular and toes. ♂'s have advanced molt, including lumbar area and thighs, but two other ad. ♂♂ slightly more advanced. (Still not clear whether early molt means good or poor condition.) Births and molt are ahead of A troop (2 whls.?) I think. Animals look poorer - some lean, scraggly. Partly due to fights in enclosure, I think. I saw ♂'s attack a ♀ w. inf., chase, catch, + bite her as if punishing. apparently enclosing gp. at start of mating season had no significant effect on mating season, but of course fence imperfect and outsiders got in. At any rate, estrus not delayed.

27 May 1966.

Izuyama, Aichi-Ken

M. Kawai has compilation reported birth seasons many localities since 1958, and has made some graphs comparing. But apparently has done nothing toward correlating differences w. ecological factors. He thinks birth season somewhat early this year. In the usually early gp's. on Shodoshima, births ^{in A}, on Mar. 3, Apr. 26, May 6. while in B on Mar. 1, apr. 6, May 2. Dr. Furuya reported that at Gogusan births in 1965 started April 29. In 1966, May 8, with 8 born (of expected 25-30) by May 27. At Kyoto univ., visited Suzuki, who spent a week at Jigokudani early May to census groups and count births. He said in group A, provisioned, w. about 35 members and 12 ad. ♀♀, 3 births in April. But in troop B, not provisioned, 80-90 members including

Macaca fuscata

27 May 1966

Kyoto, Japan

about 21 ♀♀, 18 born in April. Wild troop earlier than provisioned! (I think Lindburg found wild troop nr. Dehra Dun earlier than a forest dept. grounds gp. in 1966.) Does more abundant food = later mating? Another man, recently returned from Takahashi, reported 13 inf. found there to May 26. (Kawai, incidentally, now recording molt, and agrees that it is earlier where ~~moles~~ birth season is early, as at Shodoshima (vs. Koshima).

28 May 1966. By boat to Koshima, Miyazaki-ken, with Yoshioka and Furuya. High, densely green vegetation of shrubs and trees, shore lined w. low sandstone cliffs. One fisherman, wife, & dog live on the island. Minimum water barrier about 200 meters on mainland side. Said to be many raccoons on island. Animals poorly fed up to 2 years ago and probably stunted. Until then, seldom had normal sex behavior (?) until 6 yrs. old, but now start at 3½. Usually first birth at 5 yrs. (Yoshioka). Fertility also low, as only 7 born to 20 ad. ♀♀ last year. Y. also said ♂♂ 1, 2, 3 did little actual mating, but 1 & 2 especially after shot sat by ♀ and masturbated to ejaculation. Solitary ♂♂ (7) did most of the mating.

Composition: total 59. 22 ad. ♂♂ (5 yrs. or +), 20 ad. ♀♀ (1 yr., 1-3, rest 6 or +), 1 inf. (born May 12 to low ranking ♀ which had no inf. last yr. or z), and 16 imm. (+5 yrs. 5 yearlings, but no 2-yr olds. - a typhoon in Sept. of 1964 kept everyone from island for many days, and all adults survived but no infants survived. 1 Smit ♀♀ now in advanced

Macaca fasciata

28 May 1966.

Koshima, Miyazaki-ken

pregnancy (but 2 or more of these have clear molt crown).

Yoshiba said in winter use 6-7 kg. food per animal per month (sweet potatoes?). Summer less, as abundant natural food. May, eat berries, fruits, new leaves.

Vegetation - trees & shrubs about $\frac{1}{2}$ evergreens, Y. says. About 12 species dominant. He has plant list and observations on phenology. He also says birth season a little early. Also that Takashigajima season more compact as numbers increase (as at Cays S.).

Bonnet macaques - 1 gp. + $\frac{2}{3}$ another brought from India to JMC. First part in enclosure, other in dome cage. In wild most info. Aug to Feb. (births), but a peak rather than distinct season; the peak varying with locality. They plan to put bonnets on an island. Occasionally one crosses to mainland. About 6 yrs. ago one did, then about 5 yrs. later returned just before mating season, participated in mating, & departed again. 1 of 7 born last year, 5 survive.

to Tojimisaki

29 May 1966 Rain & wind night to nearly noon. 1050, left for Tojimisaki with Furuya. Many Cycas in canyon m. monkey feeding area, near ocean. Feeding at foot of a mod. steep wooded canyon. Saw no monkeys, but fresh droppings. The keeper, Hoshio Yorichi, there about 10 yrs. and says May 21 earliest birth he remembers. This year first May 24, and 4 born to date. Says usually all born by (mid?) July - short season? He said about 250 monkeys, now tending to split troops. Gp. at feed area last eve, & usually comes down when sees him. He put wheat many spots on ground by 1300, but no monkeys yet. Vegetation thick & green, with high

Macaca fasciata

29 May 1966

Toimiaki, Miyazaki-ken

proportion evergreen. Many ferns in open, knee high, and many light green new leaves ends branches evergreen trees.

Dock (Rumex) much common in open; Furuya said monkeys eat all parts at Gogusan. He thought height & density veg. similar to Gogusan, but more evergreens here. He thought he recognized "haze" and some other species. Weather record available for lighthouse, atop exposed ridge. Back to Koshinia.

When fed sweet potatoes, many take and dip in puddles or edge sea before eating, or eat off brown layer & then swish vigorously in water from time to time, sometimes also brushing food with hands. Partly for salt flavor? A mother with infant immediately walked directly & alone 50 m. to rock at edge water, & washed potato in tidal wash at base of rock (photocd). Seal ate one potato while holding another in feet. / Molt stage earlier than

at Takago 5, apparently. Does understanding influence

ecol. factors on molt give clue to infl. on molting season? Molt also in ot ot + imm., so more easily obs.

Rank - Y. pointed out ad. ot, son of lowest rank ♀, who was next to lowest of 6 ad. ot ot in troops. First birth to a low ranking ♀.

30 May 1966. On Koshinia 0730-0900. Much play

Macaca fasciata

30 May 1966

Koshimis, Miyazaki-ken

among yearlings - Y. says typical of morning. 2-3 bit, wrestled, climbed after each other in bushes, dangled, dropped. Of 2 had clear crown molt (hadachome). 1 2 youngish ad. ♀ pregnant. Y. said 7 yrs. old and pregnant for first time. (Retarded devel.?). He also said vaginal bleeding not seen outside mating season - significant in view high no. non-pregnant ♀s. I saw ♂ mount imm. (3 yr?) and then lie on side, + imm. groomed him. Y. said ♂'s teeth much worn, so biting by him is little punishment. Y. seems to be best informed of all the primate people in Japan; good man.

7 June 1966.

Kinkazan, Miyagi-ken, Japan

Now veget. in full leaf. Warm, humid. Below area of Forest Cabin, a few soft loose droppings on trail, + I found 3 in first 400 m. to E. of cabin. I to Cabin Pass about 12:30 and on to S. on ridgetop, reaching hilltop above Sansho Pass 1350. Along S. ridge trail I found 3 spots fresh sloppy droppings, w. leatrapers working in them. Heard + saw no monkeys, so back N. to Cabin Pass (1420) and beyond. 1450, heard ^{where} ~~squeak~~ call and saw 2 adults descending from N. ridge, just S. of summit, down canyon to SW, as if disturbed by people above. I stopped & waited, 150 yds. from monkeys. From time to time 1 or 2 more descended, and I saw at least 9. These included:

Macaca fuscata

8 June 1966

Kinkazan, Miyagi-ken

only 3 ad. ♀♀ and 1 inf., so not the whole large group, and no yearlings. I judged ages & sexes: 1 inf., 1-2 yr., 2-4 yr. ♂ (but not reddened), 1 ad ♂ (molted crown), 1 ad ♂ (w. bloody t. elbow, left forefoot up in running - one of the 4 yr ♂♂ was with him, & these were last in order); + 3 ♀♀ (only 1 w. infant). (Allowing for 6 more min. + 3 ♀♀, still = only 18 total in a gp.). The ♀ w. inf. followed by 2 yr old. / Molt. Ad. ♂, small testes, hood anterior 3 cm. crown molted. Ad. ♂, molt continued to nape in medial band. (250x telescope). / The animals walked across slope to ridge. ♀ w. inf. ascended 3 m. Symplocos tree^(shrub) and ate leaves in successive handful grabs. (Collected some for analysis). While below her on ground, in open Messianthus area, an ad. ♂ ate from a Berberis bush (1515). 1530, nr. same tree on ridge a ♂ (4 yr? - barely pink butt) pulled down branches Berberis bush (mod. spring) and ate from, serv. xx. I went to the tree, and across the valley to NW, atop W. ridge, ¹⁵⁵⁰ I saw 1 reaching up, standing on hindlegs, & eating from Berberis bush. (Later visited site, but did not relocate gp.)

8 June 1966. 0630 at Cabin Pass. Walked down to E., N. cross country to trail to summit, up to area Heaven Pillar and summit. Heard none, & saw no droppings - in more open areas To W. at this season? (May) Much Ganthoxylon here, but little ~~no~~ Berberis or Symplocos - too damp & shady?). 0840, left summit and walked out S. ridge (to above Sansho Pass), where some droppings (same as yesterday?). Heard none. Returned to area Forest Cabin.



Cercopithecus ascanius

(redtail)

Cercopithecus mitis (ascanius?)21 August 1965Kibale Forest, 7 mi. E. Ft. Portal, Uganda.

First saw in wild in tree around tea field of Wm. Pridham (Kigani Estate) in sparse-foliage trees, in area of Colobus ab.
 $[= 0.2]$

22 August 1965. Km. 6 ^{post}, ~~on road~~ Kagera Game Mill
 saw 7 in tree with 10±
colobus abys. No interaction seen; at edge & within loose
 groups. Three together on one low (20' up branch), one lying
 sprawled w. belly up, being groomed. Three lower in tree
 than colobus ab. usually? $[= 0.9]$ // Mr. Head road camp I saw one
 apparently alone, about 10:11 a.m. // 1030, about 500 m. E. of
 Pridham house, 4 about 30' up 60' tree, about 50 yds. from
 edge tea field. / Rain 4 p.m. 6 p.m., after rain, from our house
 at front sta. saw 8± in thick foliage tree 200 yds. N. Leap about
 15' out + 10' down to land on spreading flexible branch. Several in
 succession leaped to about same branch. / Wm. Pridham brought
 one he shot eating his "meaties." 4.0 kg. 117 t.l. - 715 tail - 145 hf,
 36 ear. 07, prob. subad. Testis 25 × 20 mm.; no apparent semen in
 test. or epidid. Took 10± nematodes to 25 mm. from dead. + illuv.

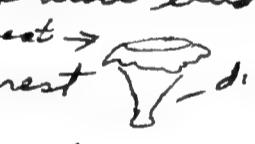
spec. 3000

23 August 1965. 0832, Km. 6 post, 2 in tree to E. of ad.24 August 1965. 10:00, ^{1/4 mi. NE of Pridham House,} ~~on rd. S. of Pridham's jet.~~, 07 subadult?

$[= \text{Celtis?}]$
 alone in 70' tree, eating foliage. Leaves 4" D. 30' up. // 1230,
 area of Elephant Control Patch, 2 adults 50' up in tree w. yellow flow-
 ers, in rain, apparently feeding (W. of road). / About 5:30 p.m.
 in forest just E. of Kanyawara, saw one in dark forest near band
 of Colobus abyssinicus.

27 August 1965. 5:30 p.m., $5/10$ hours after rain, 7 or 8 in 30' trees w.
 mod. foliage at jet. Lebitoli + Kagera Game Mill road (same or once
 seen evening at ranger station?) // 5:45, 400 yds. E. of Kabanya

redtail

Cercopithecus nictitans27 August 1965.Kibale Forest, nr. Fort Portal, Uganda2000± s. [=0.2].
5:55, ~~sun~~ wall of K-6 signs, one 20' up in 40 ft. tree w. sparse folg.28 August 1965. 0940, K-6, in compound lead. tree 100 yds. ESE,
2 (ad. & juv.) picked & ate fruits (?). In another tree w. yellow
flowers (Markhamia ?), 15' tall, 1 redtail ate apparent buds &
flowers. 1120, 2 still in tree nr. K-6, feeding. 1145, $\frac{1}{4}$ mi.
E. of Bradham house, 1 redtail handled (ate?) yellow flowers of
tree. 1 Mi. 5.4, at big termat, 7 ad+ (2+ blue). Also nr.
mi. 5.3, at least 4 at 1130. Redtails moving about fast &
frequently, no hard to count.5 September 1965. About mi. 0.9, one mangabey with
band of C. nictitans.6 September 1965. About mi. 1.5, 7 p.m., 6+ in one Markhamia
tree eating yellow flower buds, & sometimes upper rim of large
flowers, discarding rest . This tree is common yellow-fla-
wered one in which various monkeys seen lately.13 September 1965. 1030, mi. 1.1, 1 in band w. 1 C. h. h. h. +
7 ad. C. abyssin. The redtail to the C. h. h., which grinned it!
Mi. 3.9, about 1300, 6 ad+ to w., including 2 $\frac{1}{2}$ grown juvs. All jumped
singlly across gap, going 15' across & falling 20'. Legs held out in fall,
belly first, & not paddled. The juv. fell especially far. Landed in foliaged
branch. 1 Mi. 7.3 (area 20' stamp on t. side road) a single redtail
eating 15 mm. diam. spherical green fruit, smooth, in "apicot" lead
tree; apparently alone. Rain started.14 September 1965. Saw 2 w. C. h. h. and Cercocobes nr. Mpanga
R. at mi. 3.5 about 1000. 1230^I, mi. 2.1, 2 to E. Commonest &
most widely distributed forest monkey here.C. h. h.
grinned
C. n. n.!

Cercopithecus nictitans17 September 1965Kibale Forest, Toro, Uganda

Mi. 1.66, about 1800, 12+ ind. at least 3 juvs. But moving at once so hard to count; impression of more than actual nos.

18 September 1965. 0900, one near O.I. on Pricham's road. / 1030, 8 or + in trees to E. of mi. 1.63 - same place as yesterday eve! / Mi. 1.25, one also ate Morinda flower.

19 September 1965. In tree "C" near Bradburns Rd., H 1530, 3. One ground another. all at lower level than 11 C. alyssa. in same tree.

20 September 1965. About 1020, mi. 1.0 to E, 2 in low trees.

21 September 1965. In forest adj. to highway across from ^{Kagera} sawmill, saw a few near Col. alyssinicus. One ad. gr. another ad. / 1030, mi. mi. 1.3 W., one in same tree w. one C. mitis; same combination in another tree. Eating same food, in part. / 1745, see notes C. mitis. 10+ redtails to W. at mi. ~ 1.68, as on 2 previous eves, but no Col. badius + 10+ C. mitis in groups! The mitis well mixed in order. One redtail gr. another. No species interaction seen. / 0830, K-6, 2.

26 September 1965. Two w. 4 C. mitis at mi. .9 W. (see mitis). One 1040 at 1.4 W. Commonest of monkeys in this area S. of Kagera Sawmill. / 1725, 1.68 W., 5 (one half grown), 4 or + Calaburus alyssa, 1 C. badius, 1 C. mitis, scattered in trees.

27 September 1965. 0810, one in same tree (Celtis?) with 6 C. badius.

28 September 1965. Morning. 1.15 W., 3 in single Morinda tree eating flowers; 3 C. badius in area. / 1730, 3 or + w. 1.48 W., where 6 ± C. mitis. One redt. ate coffee fruits. They made soft grunts while feeding.

Cercopithecus mitis nictitans

30 September 1965 Kibale Forest, Toro, Uganda

about 1130, 1.2E., one in 20' Trema (not seen to feed).about 1700, 1.15W., 2 eating Morckhamia. Wasa R., Toro G. Pres.4 October 1965. about $\frac{1}{4}$ mile SW of the game lodge I saw one adult clearly, + later one in dense foliage tree near W. bank, within 50 yds. of Calobus alrys. In evening I saw 2 on limb buddled together, about opposite the game lodge. Kibale Forest,10 October 1965. Near Dura River somewhere road passes through part of west Kibale Forest, S. of Kijarama, saw gp. 10 \pm (juv) and 4 adt including juv. 80' closed mod. dense shady forest; few dead trees.12 October 1965. about 1545, 1.27W., 2 adt eating Celtis; pull branchlet to mouth. A Calobus badius within 50 yds.

27 October 1965. Samwell road, 1.68E.W., about 1600, 7, no jifs., went through near leafless tree in succession, not all using same route. Usual area gp. seen. 1.205W., 1 25' up in tree. 2.05W., one in tree, 1700.

28 October 1965. In morning, Carla saw 2 to N. of Chembu Path (N. corner Bridham tea), + 1 in mixed gp. 5 that included C. mitis + C. badius. Saw none in census slow drive 0.3 to 2.1 on Samwell Road, 1530-1700, saw 2 singles near 0.45W., 20 \pm ft. up. (Overcast, calm).30 October 1965. Samwell road, 1.53W., + spread 100'; 20' up. 1.54E., single over. 1.55W., one ate yellow Morckhamia flowers, 30-40' up, active; 100 yds. away a C. mitis sat passively, 20' up.1 November 1965. 1540, 3 singles within 100 yds. of 6 adt 1540, Samwell Road 1.2W., 2 in tree (3 adults) lilyes in Morckhamia-Celtis area on 1.3 W. within 100 yds.). Car bear molt "splash" at 100 yds. at least 3 cm

Cercopithecus mititans
ascanii's

1 November 1965

Kibale Forest, Toro, Uganda

Saw + singles during road census. Then at 1.9 E., 3 only 10-15' up in Trema. Tail partly looped on branch - somewhat prehensile? One into top 20' Mitchamia and ate.

2 November 1965. 11 am, 0.83 w., 2 juvs. in Canops (?).

One seemed to nibble new buds on ^{sides of} Trema branches. 1/1300, about 6 walking thru branches Trema near 0.65 S (census). One mounted other ahead of it; seemed to grip scrotum w. hindfeet; stayed on for count 16 secs. - desmounts; anterior one lay prone a few secs; then sat up + turned, + two put noses close together calmly. Then walked on. Gafuel?

3 November 1965. 0815, 3 \pm in 15' Trema at 0.9 w. In same area about 1730, 3 in 80' tree.

4 November 1965. 1035, in loose gp. (?) 3 blue, 1 redt., 1 red col., + ?, badius + redt. passed on same branch w/o apparent reaction. 1/5.5 E., at least 4 in mod. dense green veg.

5 November 1965. 1100, saw 3 singles along N. boundary forest of Pridham's tea field. Walked S. 1.33 w., 2 redt. 1.8 w., 9 \pm with 9 \pm blues in loose group, mixed in order as three tier to N., tho follow about same route. Redt. more scattered than blues in gp. (less tightly gregarious?). One ate yellow Mitchamia, walked to 2.15 + back. about 1830, 1.33 E., 3 in apparently leafless tree, seeming to eat tiny buds.

5 November 1965. about 1700, 1.73 E., saw 3. Near 1.75 w., 2 in big dead appearing tree, seemed to bite at bark or leaves occas.

6 November 1965. about 1700, 1.63 E., gp. of 9 seen (3 juvs., no carriers). going through trees where little foliage, ~~so~~ following about same path, at intervals. Two juvs. hesitated at a jumping place,

contr. w. Huddow
mount -

Cercopithecus nictitans

6 November 1965

Kibale Forest, Toro, Uganda

climbed 10' higher, & made shorter crossing there. One in ^{Trema} 10' tall,
9
8 November 1965. In botanical garden, Entebbe, in 100' ft. tree, saw a
small group.

11-12 November 1965.

Mabora (sp.?) Forest, 7 mi. N. Lugazi,
20 mi. E. of Kampala, Uganda.

In forest area (80') near coffee & tea, where some Cercopithecus, saw a few,
including band of 10 or +. The last individual carried juv., & five small juvs.
Chirping, babbles, audible at about 50 yds. One in tree gave low and
single short loud buzz, almost like a snap, scold termis, as if an alarm call.



Cercopithecus aethiops2 October 1965Wasa R., Toro Game Preserve, Toro, Uganda

about noon saw one running slowly, doglike, on road and onto the bridge. Trees wide apart, & somet. over 50 yds. from trees. As car approached it stood on hindlegs as if to look at us, then ran down bank into very tall grass (& not up tree). On previous trips to ^{5.} ~~this game area~~, saw 2 grs. along shore of Lake Albert, in region of the falls, in area where also saw Callobius abyssinicus. In evening saw 3 walk down tree trunk of large spreading tree near river at edge grass land on the Wasa game camp, within 5 yds. of where I had seen C. abyss. on previous occasion.

4 October 1965. I saw one ^{on ground} near native house at N. end Wasa bridge.

5 October 1965. about 9 a.m. I saw two (one half gr.) atop well-leaved tall tree near river about $\frac{1}{2}$ mile S. of Toro game lodge. In eve saw one $\frac{1}{2}$ mile downstream from Wasa bridge atop thick foliaged bush 15±' tall; sometimes only head protruded.

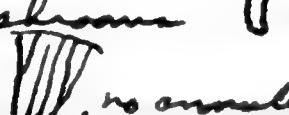
Entebbe, Uganda.

25 October 1965. Visited F.R. manne of Vervet (EA). Saw 5± free on road 200 yds. short of his house. See Journal, photos.

—

Macaca mulatta6 August 1965.Nr. Dehra Dun, U.P., India

With Don Lindburg on Asanori date bungalow, saw fine or inter alia alongside road, & others near. We searched trails in and at edge forest for a few hours & finally saw about 5, including an adult ♂ & imm., in forest. The ♂ thatness us through aperture in foliage at 200 yds (!), tho we quietly sat on fast floor. Full foliage on trees, yet heavy carpet of leaves on floor (fell about April). There have been monsoon rains, but no rain today. Forest is second growth, under fast dryt. control, with largest tree about 12" diam. & most under 3" - so visibility poor in general. Monkeys rarely call, so detection & following largely by listening for branch crackle & seeing waving branches. all animals in forest have completed molt and seem to be in good nutritional condition. Lindburg says forest forest groups sometimes out on short grass or in isolated trees at edge forest, & thus easy to watch. No stoma edema in sex skin seen, tho males red. reddened. As contrasted to Ceyo Santiago, animals quiet & widespread - often 50+ yds. between members, it appears, & imm. on edge of (or tail end of) groups. Lindburg has "lost" groups of 30+ he had been studying, & has not found them for several days.

7 August 1965. Again ^{searched} searched trails + sat forest with Lindburg. We met groups 20+ (60?), including many imm.; in dark forest. Several picked + ate mushrooms  about 3" diam., pink tops when ^{mature} eaten, dividing gills , no annulus or volva.

Macaca *Macaca*
Fasciata

7 August 1965

N. Dehra Dun, U.P., India

When scared run, as in alarm, stay on ground, & sound on leaves like start of heavy rain shower. Few calls; once imm. on ground gave location grant, & scat nearby did same then. Compared to Cays Santiago, quiet, widespread, separated from neighbors. We visited groups 30+ in grounds of Forest Institute. At least 8 infants; no old ♀ w/o inf, but one about 4 yrs. w/o. All adult ♀'s molting, one crown only, some with long gray hair only lateral thorax. 3 ad. ♂'s seen; one w. tail prominently up, ab. lower jaw protrusive, & tail so curved to one side; apparently #1. One w. hole in R. cheek pouch obviously much lower in rank. About $\frac{1}{4}$ mile from others a single ad., prob. ♂. Lindburg may make some social behavior studies on these groups. Sex skin very red on 1 old ♀, mod. red or pink; smaller mod. red. Male #2 sat close over ad. ♀ in tree; only consorts? There at edge large block of pines with 10-15' ^{under} story, thick; probably largely dependent on feeding by people.

8 August 1965. In 3 hours in forest area detected none, tho saw group of langurs. Population density apparently ^{low}. Large dung beetles roll away dung balls soon after monkeys pass. Saw eating fresh new distal part of shrub, so some monsoon effect on nutrition.



Hargoby *Colobus (Procolobus)*
Cercopithecus = [8 Sept. 1965] *badius*
 Identified

24 August 1965.

Kibale Forest, Ft. Portal, Uganda.

Some
C. badius

On road S. of Kagera sawmill, 1 mi. S. of Nyagata R., at 12:10 p.m.; saw group 12 ♀. Light gray with rufous crown. First impression of many. Devil in slow succession jumped to record tree - notably they dropped about 20' feet under them, rather than springing across w. legs horizontally spread. One carried inf. at chest, & juv. (1 yr.?) next to it. There in 80' tree with mod. foliage about 50 yds. W. of road, .15 mi. S. of crest w. turnout. Light rain; animals active.

Rd. S. of Kagera Sawmill, Kibale Forest
[O. 2]

27 August 1965. 5:45 p.m., 400 yds. E. of Km. 6 sign, one (apparently "mangabey"); black back, gray legs, long black tail, brown crown) in nearly bare tree.

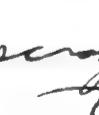
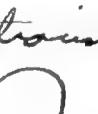
29

28 August 1965. Across (E.) fr. Prichard's tannery, 0900, 6 in trees, + 15 ad. *Colobus albus* within 100 yds.; one "mangabey" to only 20 yds. from 5 Col. in tree (below & to side of them), but no animosity seen.

Kibale Forest

confusion
Cercopithecus +
C. badius,
until
0 Sept.

13 September 1965. About 1030, m. mi. 1.1, one in bank with 1 redtail + 7 *Colobus abyssinicus*. Peaceable; within 6' of an albus. at x. The redtail to it + the *badius* groups it.

14 September 1965. 1000, mi. 5.5, 10+ in trees nr. Mpanga R. Black, gray-brown shoulders + nape; scraggly long hair, espec. nape, + tail tapered. Head silhouette  near gp., 2 *C. badius* and 2 *Cercopithecus ascanius*. Soft gurgling vibrating call, repeated, from there. Move slowly, contrarily, compared to redtails - in line. Tail often  or . One w. inf.; at least one juv.; saw 6+. // *Colobus badius* - 1000, m. mi. 5.5 where *Cercopithecus* + redtails in trees. 1220, mi. 2.95, E.

Cercopithecus

Cercopithecus alb.

(*mangabey*)

Prob.
Cercopithecus

Colobus (Procolobus) badius

14 September 1965

Kibale Forest, Toro, Uganda

♂ and 2 w. largish wif. / 1300, mi. 1.2, w., one fed w.
 5 C. alysiaceum on leaves tree. / 1800, nr. Selitsli house,
 one fed some brush as seal Col. alyss., within 6' at x.
 1845, same one 70' up dead stub w. 4 Col. alyss., well
 after sunset. 6:58 p.m., it bounced some on branch; a ♀ C.
alyss. moved from perch, + ^{the red folder} ~~red tail~~ took the place. It
 sat within 6' of Col. alyss. at slightly lower level; about 7pm
 jumped into nearby ^{well} leaved tree.

17 September 1965. One fed 100' from several C. alyss. in tree
 nr. Pridham Rd. (0.2) about 1145. / about 1740, mi. 0-1.3, large +
 smaller dashed N. (W. side road) thru trees, rather redolently it appears. They
 seem to jump up when crossing gaps, rather than just out. / 1900,
 Pridham road nr. 1, 200 yds to NW, ♂ and 2 juvs. ^{playing} ~~play~~. In
 fine branched tigran leaved tree w. little foliage. Soon saw 13
 spread 100 yards in 3 trees, feeding very actively - much more active
 at this late hour than Col. badius alyss.

18 September 1965. 0840, at least 7 in 3 trees in area where
 seen last eve. One ground other. Feed on small green dist. leaves
 (or infant) by pulling branch to mouth. One small juv, 6' from adult. /
 1

20 September 1965 0850, mi. 1.15, 3 or 4 10 ays. to W 0815,
 2 about 200 yds. N. Pridham's Rd. / 0850, at least 4 ad. +
 2 juvs. to E. road at 1.25. Occasional high squeals, or sounds
 like small dog barking - no Col. alyss.- like sounds. By
 0915, apparent about 20 or more. Jumps more much, back
 + forth, not progressing only one way. Finally proceeded to
 S. in rough succession, + I counted 17 with infants carried,



*Procolobus badius*20 September 1965.Kibale Forest, Toro, Uganda

some very small, others fairly large - so apparently a limited breeding season! At least 12 more ads. + juvs., so $25 \pm$ total + 12 infants. Bands larger than of *C. alyssimacra*. | 0955, still some in same thicket, 25' up, W of 1.17. | 1050, at N. edge of tea field about 200 yds. NE of Pritham's house, in 90' bare appearing fine branched tree (tiny new foliage) 200 yds. from foot tea field, at sharp edge of dense tall forest, $\frac{1}{8} +$, mostly on top, + actively feeding + jumping about.

21 September 1965. There still there next morning before sun rise, 0650, at least 6 in one banish tree. At 0830, at least 8 there including juv., and 2 mangabays below the C.B. (the latter striped back.). 0845 I walked thru tea towards tree, + a few at a time monkeys jumped to heavily foliaged adjacent tree or descended down in same tree, to foliage area. Allowed approach to about 50 yds. bare tree (^{Bare} photos), when 90' up. Banish tree perhaps girdled + dying. | 1000, mi. 1.9 to E., 10+ (20?) in mod. foliage tree + bare appearing (tiny new green) tree. Latter 60', + 6 \pm in top (silhouette photos). Eat tiny foliage. Bare branch bent in tree with monkeys; no interaction. No inf. noted (poor light).

23 September 1965. In forest corner at NE corner Pritham's estate, 10 \pm min. w. 5 \pm C. *alipes*. scrambling thru leaved tree, prob. alarmed by me. | 0810, same gp., 2 at, in tops 100' mod. foliaged tree (4" leaves, D-shaped), incl. inf. + juv. + his 100 yds. from previous tree, 200 from where large gp. seen in eve at edge forest (prob. same gp.) Eat leaves or petioles. Two went thru trees + sat 100 yds. N. of others. | 1735, after rain showers, 16 in one near bare (fine new leaves) tall

(Pro) Colobus badius23 September 1965

Kibale Forest, Toro, Uganda

tree at edge Pridham's forest, 200yds NE. of house. Feeding. At least 2 more within ⁵⁰ 100yds. Juvs. played together; 4 at once. Adult often carried one, at least 6 juvs told. (Part gp. in tree when 2 C. alyps. seen about 1630). Easily visible w. naked eye from Pridham's house.

24 September 1965. 0745, several still in branch tree at edge ^{tea} tea field where seen last evening. Shaded; light E. breeze. | About 1115, start "Chimp Path" at NE corner Pridham's tea, 50yds, 15-20' up in 100' well-leaved tree, 50yds. from gp. 7 a + C. abyssinicus. One ad. in band C. alyps. near mi. 1.4 in eve.

25 September 1965. 0800, at least one in top of branch tree (Celtis? 300 yds. NE Pridham's house, as yesterday morn (same tree top). 0845, ^{ad} one with 5 C. alyps. at mi. 1.45W, as last eve. Gave single high "wrrugh." | 5 pm., 200yds N. of Pridham's house, 4+ in sparse foliozed Celtis top; 4 mangabey within 50yds. | 1730, one with gp. 4 a + C. alyps., as seen here before, at 1.48W.

26 September 1965: 0815, from Pridham's house saw a few in front edge, 300yds. N., at edge tea field, as usual. Mangabey within 50yds. | 0840, in Pridham's NE corner forest, 4 ads. plus small + larger juvs. in near leafless' tree. These 100yds. from gp. 7 C. abyssinicus in more leaved tree. One being casually by one hand, looked about, then climbed up (can't imagine C. alyps. doing same). The juvs. wrestled gently. | 1610, 2 fed top tiny leaved Celtis nr. NE corner tea field (tree 200yds N. of 2 on Pridham's Rd.) ^{mile} 1753, 3, 7, 8+ about 200yds. E. in trees.

27 September 1965. 0810, 15 yds. N. Pridham Rd. 1.5, 6; redtail 15' from some; usual sparse foliozed Celtis (?). Two other redtails in another tree. | 0910, 1.3 ^{to 3} 3⁴⁰, 2 + 2 C. mitis in ^{same tree!} Celtis trees. E.

Colobus badius

27 September 1965
1.35 E., w. inf.

Kibale Forest, Toro, Uganda

One w. infant. One sat same tree as 3 C. alyssin, within 5' yds. all + 3' of one ad. / Yelps like tiny (Pomeranian or Pekinese) dogs, yip, yip, made by C. b. g.p. | 1025, tree w. of 1.0 where sawt C. alyss. earlier, now 2 C. badius. As I appr. to 100 yds., these descended + entered tree where sawt C. alyss. rested. (Two of latter dashed away, but soon returned.). C. b. ad. sat 8' from each of 3 ad. C. alyss. | 1600, ♂ in branch tree tops nr. Prich. NE corner tea field, ~~200 yds. N. of~~ in area 200 yds. N. of Prich. Rd. (Probably same g.p. as ranges to 200 yds. N. of Prich. House.) others in similar trees to E.. | about 1015 saw one ascend tree where 11 C. alyss., nr. 0.3 E, + possibly displace one (see C. b. notes). 1050, 6 (1 juv. (yearling?)) feeding in rain in Celtis (?) nr. NE corner of tea field (N. of P.R. 0.2). (C. alyss. comes in rain like rhesus; C. b. fed actively.) | about 1400, 3 in area of 5 ads. near Prichamne NE corner. 1505, 3 at within 200 ft. of 4 ad. C. alyss. at 1.4 E in trees.

29 September 1965. Alto stratus; calm. About 4 a.m. saw one from Prichamne house, or in walk along forest edge + N to creek on Chimp Path, + back to house. This unusual not to see here. Kagera 5N rd. 1.15 W., 3 (perhaps 1 sep. from others). (In area were 3 C. nictitans.) | 1.3 W., 4 in Märkhaemia tree; fed (on foliage?) + "1 infant. about 0930.

30 September 1965. Kagera 5M rd. 0.4 W., in Celtis tree w. small leaves + flowers, about 12 including 3 ± juvs. and 4 carried wif. 1. one wif. small + crown dark gray rather than reddish. About 3 of them went 10' to tree where 6 C. alyss., + both fed in same tree, often

*Colobus badius*30 September 1965Kibale Forest, Tororo, Uganda.

within 6' are another w/o apparent interaction. Ralf saw intersp. action: ♀ ad. C. albus chased juv. C. badius, then large C. b. chased back the C. albus. Other similar obs. A big C. b. seemed to displace ad. C. albus on perching place. One ad. C. albus gave faint at ad. C. b.. No clear interspecies dominance etc. ad. C. albus dom over juv. C. b. and prob. big C. b. dom over some (?) ad. C. albus.¹ About 1730, 1.3W., 10± incl. incl. 1 or juvs, 1 or inf. - move about much so very difficult to count. 1.3E., 3 in area of 4 ad. C. albus. When a truck passed on road, one came bounding thru tree toward us as if to threaten, & stood giving "chi, chi" calls (red mouth lining conspicuous); shock brand as if in threat. Brown eyes watch crown. Some in Markhamia. One within 10' of 2 C. albus. in same tree. C. badius grays diffuse - hard to tell whether a group or just scattered, at times - possibly join just to feed.

7 October 1965. Driving S. on sawmill road, mi. 1.35^{w.}, seen in tall spreading Balanite & other trees. In first at least 5 ad. + 1 or juvs., + 5± in another tree 50 yds. distant. One walked 20' to another, lay prone, & was groomed. From S. came an ad. C. albus, thru tree where 5 C. badius; there's no overt reaction. However, 1.35w., 7 incl. juvs. and infant in Balanite, where one or + C. albus, now.

8 October 1965. 1745, 1.36w., 12± incl. 2 juvs. + inf., in some of same trees as last evening. Secluded in dense foliage small of sp. I do not tree, appear thick used by C. albus. Some in the tall Balanite & one seemed to eat foliage (C. albus not seen to). 1.45E., a single one

*Colobus badius*8 October 1965.

Kibale Forest, Toro, Uganda

to within 6' of one *C. albus*, in gp. of 9 latter.

10 October 1965. In fruit patch 3 to 1.3 mi. s. of Kanyawara forest ranger's house, saw band of 7+ (2 juvs.) - prob. 10+, in green foliaged tree, 60' up. Mod. dense forest; to 100+ ft. trees. / In Kengani estate area, none seen along border tea field or N. of Prisham Rd. for long time. Have leaves matured too much in feeding trees?

(1 Oct. - see next page)

12 October 1965. In morning, Carla & Kriste found 9 or +, including small inf. and a juv., in tree near 1.25 W., the big Balanite tree at first. Monkeys made chirping sounds, & later came closer & made calls. Impression of being different from *C. albus* is being more apparently aggressive to observer. / about 1545, I saw in same area, 1.27 W., ad. w. inf. (black crown) at abdomen.

27 October 1965. Sawmill road, 1.25 W., about 1730, one in crown of 100' Balanite. One within 20 yds. of 2 *C. albus* ad. at 1.7 E. / about 1800, in forest edge NW of Prisham's house, 60' + about 40' up, going N. through trees, well spread out. Lips seem more diffuse than *C. albus sinicus*. Spread 100 yds., following about same route in file.

28 October 1965. Carla in field 0830-0930 near NW corner of Kengani estate + "chimps path" from NW corner to stream. Along forest edge to NW of house saw 10 or + (2 juvs.). At N. side of start "chimps path," 10 (1 inf.; 2 ad + juvs.; 1 pregnant?). Near stream, 1 squashed + 2 others heard. The one, alone in tree, broke off branch, carried across tree, then dropped it - excited by observer prob. with more excitement, barked. / To N. of this one, 5 monkeys in tree including *C. badius*, ^{Care.} *australis*, *mitis*, *auctotis*. and



Colobus badius

11 October 1965

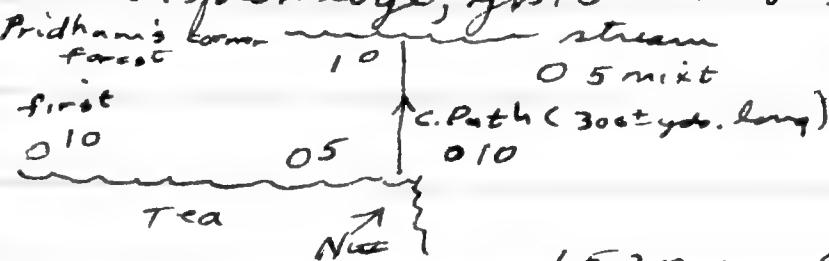
Kibale Forest, Toro, Uganda

1035, 1.25 w., in big Balenete 4 ÷ (juv.). Facing observer, call "chree" at people. Variety of low short squeaky calls.

*Colobus badius*28 October 1965.

Kibale Forest, Toro, Uganda

back at forest edge, gos. 5 or + to s. (part of orig. 10?).



1520, near Chimp Path by stream, 10 (incl. 2 juvs.) + 2 wifs (carried), + probably 15 or more. Much jumping + movt.; hard to keep count. Seem to grab single branch w. hands in landing, rather than sprawling on mass of foliage + branches. About 40' up, in open to mod. foliage.

30 October 1965. Saw one within 50' of 3 C. albus. at 1.7w.

Tree at 2.1 E., where once I shot red soil w. hornbill in apparently leafless tree, ^{now} moderately leaved out - got tiny new leaves!

2 November 1965. about 1030, at w. edge swamp at Barnhill Rd. 0.8w., about 40. at least 3 wifs. carried, + 5 larger wifs (red-crans). A redtail sat alongside one; possibly gr. by C. b. By 1050, several of gos. 50 yds. separate, to SE on road, + at least 2 C. albus near them (10 yds.). at least 21 apparent adults. 17 within 20' sphere centering in dead noisy 20' much branched tree at edge swamp.

1058, counted 39 incl. wifs., w. 2 C. albus, and 2 redt. at SE edge, + one redtail in same tree and among 15 ± C. badius, + juv. C. b. rubbed against redt. in passing. (The C. albus gos. at 1050 edge = 6.)

1106, spread about 100 yds. total. / One carried 2' strip (Typha? leaf?) in mouth or clink thru branches & leaped; ate at it, + another grabbed ^{at leaf} as if to take leaf. Others held single green tree leaf in hand and ate at it, as ice cream cone. Many descended to level cat tails 'at times, occas. dropping straight down to ground. One ate at 0 fruit (10 mm) of Carapa? (large.

Colobus badius

2 November 1965

Kibale Forest, Toro, Uganda.

thick leaf; terminal ones red). Some had muddy post. thighs + hind-legs. 1130, still 15 or at site where first seen. Bright, overcast. 1140, at least 2 inf. w. black crown; one of these ts if from ad. One sat ad. on low flexible branch; hand over head, hanging, to long tip twigs. They hung by one hand a few sec. & dropped straight to ground. At least twice saw one ad. groom another; about same manner as rhesus. Twice more saw one climb up branches from swamp carrying long green Typha? leaf in mouth, basal end ^{roughly} broken. Ad. gr. & w. inf. One in small Mitchamia ate green leaf. 1200, still 20[±] in original area W. of swamps. One had bulgy abd. as if pregnant. Another w. Typha leaf. Seen to eat at least 6 kinds foods so far; much more variety than C. alrys. 1207, still 6 or within 10' ground over dense tangle herbage by swamp. Two more climbed up bushes carrying Typha leaf. 1230, still counted 20[±] spread 100 yds. n. o. & w. Showers commonal. Some moved higher, as if in response. One plucked leaf of compound-leaved tree (20[±] leaflets), ate at base petiole, & dropped; repeated. (Never saw C. alrys eat this tree). Little moist. about in rain; a few eat & others sit hunched forward in rain. None below 20' now. Rain continued. 1310, 7 25-40' up one big tree; most hunched forward & quietly sitting; some ate. Showers still. Rain to 3pm. Cleared much afterward. ~~1620, a. 9E. 300 yds. SSW. 0.85W.~~ 6 or 8 still, near road. One gr. another lying lying some facing away; then groomed raised hindquarters & gr. cont.  3 or 4 in 15' Trema trees. Smaller appr. larger on branch, turned & crawled w. arms toward larger & tail up, then away (^{and} escorted?).

*Colobus badius*2 November 1965Kibale Forest, Tororo, Uganda

The group spread 200 yds. now, 10 or + about 50 yds. of main site first seen this a.m. Seul on single & thick branch of 30' tree, in open. But some jumped to adjacent trees. 1 ad. w. juv. ascended a dead tree. Ad. jumped δ^+ across to another. without hesitation juv. ascended first tree 10'; went out branch over second, jumped down onto it, & climbed down to adult. Smart juv! 12 or + in one tree top w. mod. thin foliage.

3 November 1965, 0815, 0.9 W., 1 ate leaves (Olea?). (about 3 individuals in low Trema nearby). / 0.55 W., 4 or +, 2 within 50' of gp.

C. albus. / The 0.9 one in tree where seul C. albus photod about $\frac{3}{2}$ weeks before. also, C. ab. in tree where C. badius a few min. earlier, m. .5 W. / 1710, 8/10 overcast, calm. 0.75 N., in Mitchamia?

4 November 1965. Sunny after fog. about 1040, 3 in top tree + apparently feeding on 6" simple thick dark-green glossy leaf. foot One dropped, after holding on hanging by one hand, to swamp ground, then to perch on down log, then on ground \rightarrow reeds.

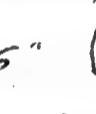
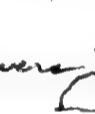
5 November 1965. Near swamps at 0.8 W. 1130, after rain showers - $\frac{0.82}{2.50}$; 7 (2 juvs), eating small dark leaf of 30' tree, and at 0.75 W., 12 (4 juvs) in 3 trees (one Olea). Lately common;
Evening, about 1630, 4 or + 0.85 W. about 1815, 14+ at 1.1 E, eating large (8")? simple leaf (=?), not a food seen eaten by C. albus.

(blue monkey)

Cercopithecus mitis22 August 1965.Kibale Forest, 7 mi. E. Ft. Portal, Uganda.

7 or 8

About 6:50 p.m. I saw one gp. of 5⁺ in tree in sparse foliage about .7 mi. S. of Kagera sawmill, within $\frac{1}{4}$ mile of road camp, by road. ^{on}
 Twice at other sites I saw, only. | about 10
 10:20

24 August 1965. About 4 a.m. saw 1 alone, \approx .2 mi. S. of Bridham turnoff of main rd. S. from Kagera sawmill, adult, about 30' up. Blotted wings (b & w). | About 4:30 p.m., in second forest patch (about 1 $\frac{1}{2}$ mi.) E. of Kanyawara Forest Sta.; saw gp. of 5⁺ in dark tall forest, about 40' up. Later, about 5-6 p.m., saw gp. of about 7 in dark forest about 300 yds. inside first forest patch to E. of Forest station. Twice saw one adult grooming another. Once saw two about 10' apart eating leaves. Leaves about 6" , apparently slightly pubescent, of 20 ft. tree w. flowers  terminal, m. white. They folded leaf & ate at underside edge, or ate at flat part & pulled out inner leaf, leaving the big veins. Blue groups seem diffuse compared to Colobus, & perhaps smaller. I saw one ad. alone in crown tall tree over road, inactive at 6:30 p.m. Many tall umbrella-topped trees, as if forest nearly mature. Little sign of truck traffic.

Q.E.N.P., SW Uganda.

Maramagambo

26
27 August 1965. About noon I saw one in forest near Kaizi River ^{N.P.} in Queen Elizabeth A.R., from road bridge. Nr. Fort Portal, Uganda
 6:05 p.m.

27 August 1965. About km. 6.5 on rd. S. of Kagera sawmill, 2 ad. in sparsely foliaged broadleaf tree, 30' up 50' tree. | about km. 6.8, 6:12 p.m., 2 adults on thick bare branch 60' up on 80' tree; little foliage. One grandmother; still there $\frac{1}{2}$ hr. later, after rain shower (one larger than other). | 6:55 p.m., about km. 6.6, one 25' up in clear under mod. foliage, 30 yds. ^{from} S. road.

blue

Cercopithecus mitis28 August 1965Kibale Forest, Nr. Ft. Portal, Uganda.

C. mitis
0910, nr. road nr. sawmill, 1 ad. 20' up, feeding on fr. or foliage; when I to 100' it gave short coughing "caaa"s for 1/4 sec. at 5+ sec. intervals, repeatedly, mouth opening 1" with each call. Alone. Light gray muzzle.

C. l'hoesti
C. mitis
29 August 1965. Nr. mi. 1.3 on Rogers - Kanyawara road, one long-tailed monkey ran across road; thought this kind.
Mile 1.8, 0955, one in yellow-flowered (Mallotusia?) tree gave single explosive cough, caaa or baash at 1 sec. intervals; alarm? When I to 100', it descended tree. 1 about mi. 5.4, at ^{big} turnout, one with 7 or 8 redtails in groups.

C. mitis
28 August 1965. 6:40 p.m., nr. mile 1.4 on rd. S. of Rogers sawmill, 5 (juv.).

C. l'hoesti
4 September 1965. About noon, nr. mi. 4.8 on S. Rogers rd., about 5 monkeys crossed road, tails high, singly. Some looked all black; some with red brown on back, + glimpses there in trees showed broad white collar at throat, tho typical "blues" in groups - do immns. have white throat + brown backs? This is 3rd. time we have seen monkeys on road, + always seem to be those "black" ones.

First good view
C. l'hoesti
6 September 1965. About mi. 5.7, near large logging turnout on Mpanga R. side, nr site where elephant shot ^{day before} yesterday, a band of about 10 monkeys crossed road from W. to E. These had red-brown backs, very black thighs (+ sharp division w. brown at side brown/black), white throats, + seemed larger than C. mitis. Even 2 juns. had white throat, + were said to lack. Surely not C. mitis - probably C. l'hoesti.

Cercopithecus mitis13 September 1965Kibale Forest, Tororo Uganda

About 6:30 p.m., one eating yellow Märkhemia flower buds at edge
gp. 5 Cab. abyss. at mi. 1.0 on Kagera SM road. Another 200 yds.
S., alone, high in tree on branch, not feeding.

14 September 1965. 1230, mi. 2.9, + to E. One called cheow -
loud stringy cough repeated at 5-10 sec. intervals; alarm call?

15 September 1965. 1530, mi. 1.13, one, alone, gave cough cry.

17 September 1965. 1755, mi. 1.45, w., 2 ate Märkhemia flowers.
Mi. 1.45, E, 1 10' up tree, alone. At

18 September 1965. 1820, mi. 1.15, 3 to W. in Märkhemia & other trees.

19 September 1965. about 100 yds. E. of road along Elephant Control Path,
1010, 6 or + blues in mod. dense foliage. Tails seen longer than
other species. One juv. (yearling?).

20 September 1965. 1540, mi. 1.5 W, 6 or with 3 redtails.

Blues eat flowers Märkhemia (so do C. abyss.). Most redtail
at lower level, down to 15' high. Blues interspersed; 10-50 yds
between individuals. One juv.; yearling? Blues + redt. eat flowers same
M. tree, 5 yds. apart.

21 September 1965. About $\frac{1}{4}$ mi. E. of sawmill entrance, on N. side

highway, 4, incl. one half grown juv., in $\frac{20}{45}$ ' bushes. Fed on fresh
green leaves where thin foliage. 1630, mi. 1.3 W., 3 in one Märkhe-
mia tree eating flowers; earlier a redtail in same tree (which given
way?). 1645, mi. 1.6 W., where 10+ redtails seen about 1000 m. 2
procession over, 10+ blues (incl. juv. and one tiny but not carried)
with 10+ redtails in mixed group going through mod-foliated trees
in rough procession, many following same branches; also one
C. badius in group. A large blue mounted smaller as if in copul-



Cercopithecus mitis21 September 1965Kibale Forest, Toro, Uganda

copul?

atm & stayed mounted 10+ sec., as if in copulatory pose. Then the 2 separated w/o interaction. | 1820, mi. 1.8E, one ate flowers Markhamia. Habitat seems same as mitis, but fewer, groups smaller - with seen to carry young, I think.

22 September 1965. About 0930, mi. 1.3E, 1 blue and 1 C. badius.

Blue to 20' Markhamia + fed on flowers; still there 20 min. later.

24 September 1965. Mi. 1.68E, 0820, one adult. | about 6 p.m., mi. 1.32W, 3; one 20' from C. mitis in same tree. About 1650 I saw one at mi. 1.55W.

25 September 1965. 0903, mi. 1.8W, 5 in Markhamia + other trees. One gave frightening sudden loud call, "ngaroh," stem? At least 2 eat yellow flowers Markhamia. Kids spread wide - 30-40 yds. apart.

26 September 1965. 0840, Pridham's NE corner forest, ad. and juv. in Carapa (? - large leaves; many spherical 10 mm green fruits). One to 3' from a C. mitis in another tree. | 0.9E, 1000, 4 with 2 redtails eating fruits Carapa (? - 10 mm green spherical). Included one juv.

27 September 1965. 0910, 1.33W, 2 in Celtis tree near ♀ C. badius.
same tree!
One picked & ate small new leaves, pulling branch to mouth. | 1.75 W. about 1730, one w. small black inf. One ate yellow Markhamia flowers. | Mi. 2.1E after rain showers, 1 in Markhamia tree.

29 September 1965. About 1730, 6± and 3± C. mitis at 1.68W. Two large coffee bushes may be the attractor; redtails seen to eat ^{fruits} beans.

30 September 1965. 11 a.m., 1.8E, one in Celtis tree. | about 1730, 5 at 1.5W. 1.55E., 3 or+(juv.), in area 3 or+ C. mitis. Calls of blue



*Cercopithecus mitis*30 September 1965Kibale Forest, Tororo Uganda

when fed a weak gugla or shot grunt; location coll? Some in Olea, but not sure whether ate it. One C. mit. in same tree (Tremex?) w. blues. 1.65W, one ate Markhamia flowers. Kristi K. said she saw blue & also give way & leave perch when redtail approached, & redtail then occupied the perch (supplant?). Saw none along Wasa R. in Toro Game Preserve, tho saw C. mititans there.

6 October 1965. Road S. of Kagera ^{savannah}, θ 1.55W., 1755, 6 (no juvs.) feeding in Markhamia, mostly on flowers. A Cercocelus sat in sep. tree about 50' from some blues. 1.56W, 3 more ate Markhamia, & 1 seemed to eat Celtis. 6 C. mititans scattered in vicinity.

8 October 1965. 1815, 1.55W., 3 or + (2 were fuzzy juvs.).

10 October 1965. M. Kanyawara forest sta; first forest patch, saw scat in evening. 2 within 5 yds. of a redtail. Blues ate (berries; flowers?) of bay-like tree (rough bark; no leaf, no odor).

11 October 1965. Tho overcast, bright. 1030, mi. 1.13E., 6 or blues (mid. 1 large juv.) about 20' up in small tree. Possibly more crepuscular than redtail, but out in mid daylight too.

12 October 1965. 1530, after rain, 2 or + feeding in trees 200 yds. N. of ^{0.15} o. o. on Pridi. Rd. (Left Ft. P. area Oct. 13).

18 October 1965 ^{Siti River,} Kasukuwa, Mt. Elgon, Uganda

In evening heard one give "meow" a few x to E. of "fire tower" of softwood plantation, in forest at edge plantation. Colobus abyssinicus in area too.

20 October 1965. From "fire tower" about 5 p.m., group of 6 or at edge forest (& plantation) to SW, ^{about} 40' up in mod. thick

Cercopithecus mitis19 October 1965Kapwata, Mt. Elgon, Uganda
^{NE}foliage. (Calolobus abyssinicus within 100 yds.) Heard "nyau" other xx.21 October 1965, about 3 p.m. heard one from "fire tower" to S. on rear side Siti River (Col. aby. also in area). Saw one on open branch at sharp edge of forest to NW. From front appeared black except for face area. It stayed same perch $\frac{1}{2}$ hr. +.27 October 1965.Kibale Forest, Toro, Ugandanear
1500, overcast, at NE corner tea estate, one ate yellow flowers in
^{Same(?) there 1800.}Co' Marlehamia; Sawmill road 1.7 W., heard one at 610, nyau.
1.8 E., 2 in Trema, eating leaflets from tips. 1.9 W., 1 ad.
10' up in Trema. 2.0 W., 2 20-30' up in Celtis (?) tree;
one called; another "nyau" 200 yds. S.28 October 1965, 1605, one in Marlehamia. No others seen in slow
census drive 0.3 to 2.1 on Sawmill Road. Drier than yesterday.29 October 1965. Saw one 1.6 W., morning. None in evening
walk from Prisham's house to 2.1 and return.30 October 1965. About 1715, one sat quietly on thick open
branch 20' up, while ^{100 yds.} shot away a redtail 30-40' & actively
feeding. Devil - blue more inactive than redtail? lower? /
Heard call "nyau" at 1.9 W. 2.1 W., 3 spread 20 yds. in top
of tiny-new-leaved tree w. simple ovate leaves (not Celtis
or Marlehamia). 100 yds. from me. One called "Nyau." 1735. Have
not before seen any monkeys this tree, in oft surveyed area.1 November 1965. Sawmill road, 1540, 1.2 W., at least 6
in area. 2 in one small tree (3 redtails within 100 yds.).

S

contin. →

Cercopithecus mitis1 November 1965

at least 3 (one

juv.) in big Balanite; one bay primate on thick mossy branch, resting (?). Tails usually \uparrow in walk. Prob. 6-8 blue in area of
 (3 in 10 yd. drain.)
 200 yds. here. and 4 more across road at 1.3 E. Spots sunshine
 after rain brought out? Mostly in Morhamia & Celtis. Some in
 same tree as I saw Calamus bodinii recently, nr. 1.3 W. Two
 followed, one after other, same "path" thru branches going S., &
 another \pm 3 min. later. One $\frac{1}{2}$ grown juv. seen in big Balanite.
 1.6 W., blue call "nyaw." 1.7 W., one 20^{\pm} yds. fr. road in 15' tall
 dense large (6") leaved bush (D); ^{ate.} ^{one} which there. (In same
 bush $\frac{1}{2}$ hr. later too.) Many blues today; why?

2 November 1965. Morning, one atop dead top tree, another 30'
 lower, 0.85 E. 200 yds. One "nyaw" toward me on road. / 1630,
 2 0.9 E. 50' away, 15' up. Rather tame. / About 1600, 2.0 W.,
 1 blue called. 2.15 W., 2 in crown new fine foliaged tree, ^{low} ~~over~~
 ext. 30, 60' up.

3 November 1965. about 0830, 0.8 W., 2, single bl / On highway
 about 1 $\frac{1}{2}$ mile E. of Savannell, 5-8 blues spread 100 yds. One in
 $\frac{1}{2}$ dead top at edge forest; descended in alarm & went toward others.
 One in big but dead tree. / 2.02 W., 4. A smaller group a very
 large one. at least 3 C. l'hoesti within 30^{\pm} yds. / about 1730, 1.55
 W., 1 in crack about 12' up, nr. road.

4 November 1965. 1035, 0.82 W., loose gp. 3 blue, 1 red, 1 red colobus.
⁺?
 1.0 W., one. 1.5 W., one 12' up on trunk Trema, closest to road. / about
 1800, at least 3 in trees at 1.9 E., another 50 yds. distant; much Celtis
 here.

5 November 1965. about 1510, Prid. Rd. - 155, one called. I walked 5.1.8 W;
 about 9 W. about 9 C. mictitus in loose group, the blues in larger

Cercopithecus mitis5 November 1965.Kibale Forest, Tororo Uganda

clumpes but after night in order. 2.15W., 1, + 1 redt. Walked back to 1.75W., about 1620. 1.75W., 7 blues (2 juvs) + 1 ge. inf. (not carried), all in shady lava site about 20' up; 2 redtails within 100'.

7 November 1965. See former. 1.35W., 2 in 100' big crowned green Ficus, + 3 in nearby Celtis.

Nr. Moiben (nr. Kibale), Kenya

13 November 1965. Saw one + heard at least 2 in evening in riverine forest (thorntrees mostly) on Moiben River on R. Luther ranch.

Z

Cercopithecus l'hoesti8 September 1965.

Kibale Forest, Toro, Uganda

From skin at Game Dept. Entebbe, identified as this species, known from Impenetrable Forest. [I] recently seen in Kibale Forest, 6 mi. S. of Kagera SM.

24 September 1965. About 1030, after rain, at mi. 1.68 on road S. of Kagera Sawmill, in area where several red-tails or blues seen on some previous days, saw one. It walked out on branch about 8' up, in opening in tree, & stayed while observed from 20 yds. Throat white; grey below eyes; mostly black, but distinct red brown area on back, & base of tail (ventral black) while center tail gray & tip larger & black. Scutum pale blue-white in field of black, very conspicuous in rear view. Still there 1/2 hr later, & also next morning, about 0900 on same branch. No others seen. Movement jerky. Form sleek & black-cat like. Tail once up in nice curve.

Kagera Sawmill Rd. to S. -
mi. 2.02 w

3 November 1965. In mod. thick Trema tree, at least 3 about 8' up. At last & blues in same gen'l area, & gp. of Cabassous abyss. across road.

See C. mitis for 29 Aug., 4 Sept., 6 Sept. 1965.

Kigami area, Kibale Forest

First seen 23 August 1965. About 1230, about mi. 1.0 on Kagera Sawmill Rd. route, Carla K. saw 3 run across road (probably this sp.). We heard grunts in bushes, sounds running, but not up trees. Black w. brown social area.

6 September 1965. First good view of ^{adult} male; Kagera Rd. (see C. mitis, p 2)

Pan paniscus6 September 1965

Kibale Forest, nr. Ft. Portal, Tanganyika

Near Nyigata R. bridge on road S. of Rogers Sawmill, about mi. 3.5, I saw adult and half grown about 25' up in 50' tree, 100 yds. E. of road. There on separate trunk $\frac{1}{2}$, + when we started to get out of car they quickly descended. This is same area where Carla ^{x.} [29 Aug., 1030, 15±' up]

saw one chimp about a week earlier, + where A. Mezgar saw one over a twice (^{both} within $\frac{1}{2}$ mile to S.). Pridham said had not seen one on Kigami tea estate for about 4 mos. Forest warden at Selitoli said often seen near main Ft. Portal to Kankala road nr. Mpanga R. (actually, E. of county line). ^{seen}

21 September 1965. In morning over reported seeing near NE corner of Kigami tea estate (W. Pridham), + Pridham said heard them. But later we visited area + saw or heard none. Small patch tall forest near stream there, + Caladium obs., + Iodine present.

27 September 1965. Rain showers about 11 a.m. I drove down Pridham's Road, + 100 yds. from Rogers SM road saw 3 adols. walk across road ¹⁰⁰ yds. ahead of me, E. to W., and under thick herbs + shrubs. Last had lighter hair on lower back as if shedding. a few soft grunts in shrubs, but did not immediately climb trees. I left + drove up road 15 min. later; one was 20' up tree + descended as car approached. Then bush roots. for several minutes.

7 October 1965. Along highway to Kankala, about $\frac{1}{2}$ mi. E. of county line, walked up short dirt road and saw many clear footprints in dried mud, evidently made within 24 hrs. ^{mm} D. Knuckle prints clear. apparent adult, + only one size. Forest somewhat open here from logging.

Pan paniscus10 October 1965Kibale Forest, Tororo Uganda

In area of Dura River bridge on road S. of Kigarama, nr. Bigodi, twice heard yelps + screams apparently of chimp. Closed 90' forest, evergreen, no cutting.

12 October 1965. Rain nidday; then status clouds. 1715, 1.45 W. on sawmill road, 100 ft. from road in 20' dead tree partly covered w. vines, 2 adu. + inf. Also moist on ground, + call from forest, so apparently at least 5. (a few min. before in sight, I heard scat barks from vicinity + thought it was Papis.) I stood in open 100 yds. away. Biggest (prob. ♂) highest, ate cordate leaves of vine  (lvs. 12 cm diam.; pink-purple flowers.) Log truck passed on road; inf. to ♀, which held it to abd., + soon she descended, while ♂ continued to feed as truck passed. Dense bullock to 6'; green, below tree, + a fair path where chimp had pushed way through it - good enough for man to pass. The tree 50+ feet from others, in open. Chimp broke off 3-4 cm. diam. tops w. loud crack, perhaps to pull down climbing vine. Descended 1725, + off in bullock. I soon heard loud squeals + barks from forest. Later heard from Bidbaw's estate, to S. + to W. - 2 goss?



Mangabey
Cercocebus

14 September 1965.

Kibale Forest, Toro, Uganda

First seen. See Callobus badius notes. Saw 6+.

15 September, 1965. Mi. 5.5, nr. Mpanga R., saw 4+ and 3
redtails in trees.

21 September 1965. I saw 2, one a ♂, below several Colobus badius
in bare-looking 90' tree at N. edge Pridham's tea field. These
first mangabeys seen in area except nr. [145 Sept.] mi. 5.5 nr. Mpanga,
R.
They ^{both} bit bark from 3" diam. branches, (O_{2}^{2}), apparently
using lower incisor - I did not see Callobus do this. Bark did
not strip lengthwise, so perhaps on dead branches. Several
branches branched for a few feet, possibly by monkeys. 1
1040, mi. 0.4 E., one about 10' up in big bushes. I
approached on foot to 10 yards before it slowly moved
away; apparently alone (^{F = mi. 0.2} near K-6 area).

25 September 1965. 1700, 4 in tree forest at edge tea about
200 yds. N. of Pridham's house, 10-20' apart. Callobus badius within
50 yds. of them.

26 September 1965. 0815, saw 2 in tree edge forest at edge tea
field, to N. of Pridham's house. ^{Both} One bit at bark 3" limb, Celtis
and Olea (?), where limb already branched of bark. 11605, 300 yds.
N. of Pridham's house, one 40' up in forest edge tree held 2" x 3" piece
bark & sat by 3" x 10" stripped branch deciduous tree (Celtis prob.).

Broke off chunky bark w. teeth. Cercopith. + Callobus not seen treat bark.
1015, mi. 5.6, 5⁺ to W. nr. Mpanga R., & 5⁺ more 200 yds. S. One
carried inf. This is best area for mangabeys along Kagera S/N rd.

10 October 1965. Kanyawara area, 4.8 miles into Kibale Forest from ranger
sta., 7 or + in 2 trees (Olea?) w. new terminal leaves, 30' up.

C. Koford
1965

2

Cercocelus alb.

6 November 1965

Hima Block, Kibale Forest, Tang Uganda

09⁵, in green 100' forest along a dirt road, A in one Celtis + 2 others within 50 yds. Some tore off 1 to 2' strips green bark, 10-20 mm. wide, big pull with teeth. By one, for 3' over half girth of 3" diam. branch peeled. Farther out, branch completely stripped of bark. Another tree, 3" branch completely peeled for 6+ feet. Do mangabeys strip Eucalyptus bark + colobus get blame? 20 mi. E. Kampala, 7± mi. N. Lygozi, Uganda.

11-12 November 1965. With Neal Chalness, visited Mabira (?) forest area where he studied. He said 3 groups in study area, about $\frac{1}{2}$ mile apart. Said in denser part forest than C. mitratus. We saw one gos. ♂, with one carrying inf. Heard alarm calls, loud. An eagle (= ? - some crest, bare back) perched 100 yds. from monkeys may have been cause alarm. C. says these monkeys often strip bark of dying trees.



Papio1 October 1965

Nr. Weso Bridge, Toro Game Preserve, Toro, Uganda

In evening occasional loud sharp dog-like bark from forest nr. river, & soon 9^(3 juvs.) in single large spreading tree with dull green large heart-shaped leaves. These within 50 yds. of ^{where} Colobus alyps. seen earlier. A brown vulture w. white head sat atop tree, & once a flock of green pigeons landed there. Grooming common. About 60' up in tree, on large dead limbs.

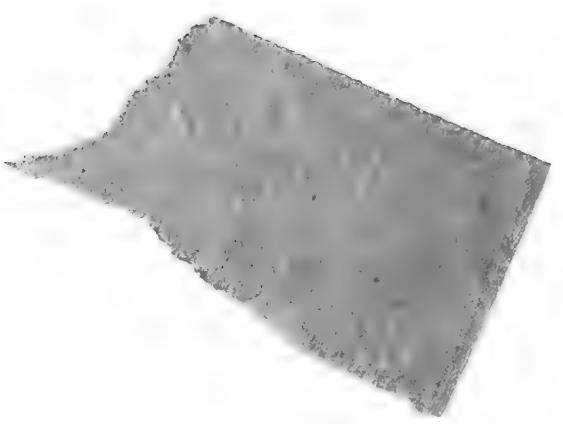
2 October 1965. About 0200 heard to bark, & Colobus in area to bark as if from intrusion. 0700, still in tree (same), & noisy fight (?) broke out. Others ran toward the fighting sounds. Gone, apparently, by 0900, tho Colobus in night trees still. | Rain in afternoon. But baboons back in some tree before 7 p.m.

3 October 1965. Much barking & apparent fighting sounds 0630. Up left tree about 0730, & soon saw in bushes & small trees within 50 yds. of our tent. Occas. fed, but mostly sat, groomed. And still nearby at 0915. In 20 baboons, only 2 seemed to be infants, & several juvs. Walked thru 2' high grass at times, & ascended isolated 25' tree. Allowed human approach to about 100' before descended. | Sp. settled for night 100 yds. N. of previous site.

4 October 1965. About 7 a.m. heard, but not seen, from camp. | about 1/4 mile upstream from game lodge in isolated tree + lone edge bushes of forest, 12 (juvs. but no inf. seen).

6 October 1965. By morning, no others seen or heard near our camp, tho colobus came as before. So probably variable in night resting site.

23 October 1965. I saw one atop flat-topped tree from road thru Belasim game preserve, SW of Mt. Kadam, 2 pm.



Species Account

[of 40]

also see
monkeys
ChimpanzeeE.Africa*Colobus abyssinicus*

Mawenzi Co., Toro, Uganda

20 August 1965.

13 mi. ESE Kyanjojo, Mawenzi

Saw 3 in broadleaf tree, about 40' up, 200 yds. N. of highway in broken second-growth forest. Easily seen w. naked eye while driving. The first I have seen in wild.

21
22 August 1965.

Kibale Forest, 7 mi. E. Ft. Portal, Uganda

Wm. Pridham, of Kajani tea estate, said now sometimes come to ground because of disturbed nature present forest. About 6:30pm I saw 2-3 groups + heard their calls at E. edge of his tea field. High in trees + most of them plainly visible. Largest gr. I saw was 9. Pridham said sometim 30. Beautiful siapse, w. long hair apparently giving parashute effect. (P. did not know red colobus; prob. misident. as many abey. Kingston, D.F.O., said a black form with red brown shoulders about 20 miles west from Ft. P. to W.). P. thought evening best time to see monkeys. Always along short roadways to his estate, he said.

100± yds.

22 August 1965. at 0900, to E. flood at K-6, mixed band of about 10 *Colobus ab.* + *Scacopith. nietmanni* (red tail, spot nose). Two adults with black infant, (gray lumber region (rather than white)). 3 juvs. mod. size, 6 ads. about 40' up, in mod. to thin foliage, broadleaf tree, at edge elephant grassland. // One ad. w. inf. had juv. (gray lumber) nr., + this one (sib?) carried inf. then on venter, 3' below ad. (mother?). A slightly larger juv. came. Then as adult, which took inf. + ran 5+ yds. away, leaving first ad. w. 2+3 yr. (?) imm., which did not follow. (The other inf. gr. by adult, while 2-3 (?) yr. juv. 20' distant in same tree. / Redtail within 10 yds. of colobus at times; I saw no interaction. / One colobus ate compound leaf, chev-

Colobus *abyssinicus*

sebitole

22 August 1965.

Nr. Sebitole, Kibale Forest, Ft. Portal, Uganda

inj. day. / opposite road camp (3/4 mi. S. of sawmill), in tall trees, mostly above dense foliage, gp. of 5 and 7, about 100 yds. apart, in top 10% of trees. / Along Pridham road saw 4♂ + about 100 ft. up, where little foliage; some on bare branches. / 1042, 3♂ + to N. of teafield by S. W. P. house. / Drove slowly to crest about 3.6 mi. fr. S. of entrance to Pridham estate, but saw no more monkeys (time of day? Overcast, bright.)

Before (N. of)
23 August 1965. Ab¹, road camp, from 2 mi. S. of K6 on road, gp. of 6 ad., 2 juv (1 w. gray lumbra), 1 white infant. Penis ad. or visible at long range, pale flesh color on black; or set hairy astraddle branch. / about 0900, .2 mi. farther on, at curve looking W. over road camp, gp. of 5 in tall trees (took 35 mm. telech. slide). / 0905, walked up Pridham's road. 0958, 400 yds. E. of house saw 9♂ +, incl. 2♂ + inf., 3♂ + juv. Then in and on, above, thick opaque foliage of tree tops (35 mm. broad. of area). 1005, still there. / at 1020, walked E. on Elephant Control Path. starting about 1.3 mi. S. of Pridham's jet. 1030, saw 4 ad. (one sure ♂) + 2 inf. (no adult carried at venter). 1055 reached Mpanga R. & walked N. on trail. 1120, across river, saw ad. ♂ 70' up on tufted limb of tree 20 yds. from river. He looked quickly about or if nervous or trying to face away from us, 200 yds. away; second ad. 100' from him. Fine green foliage, wood. dense. No recent cutting here. Monkeys seem more common in disturbed areas near roads. At 1205, ^{still} gp. when seen 10:30. / 6 p.m., 200 yds. N. of road, opposite Rogers Sawmill road, saw 3 in trees.

24 August 1965. 0850, to E. of residence on hill at Rogers Sawmill, in 60 bare trees, 5 ad. and 1 juv. (2 gr?). Apparent ad. ♂ (Crown ~)

*Colobus abyssinicus*24 August 1965.

Kibale Forest, Toro, Uganda

[reciprocal groom] groomed ad. (?) ; then lay on side & ♀ gr. him. One of us approached to 50 yds., 30' below, & gp. descended, alarmus. Juv. taken to chest by ad. & carried down. / 0935, km. 6 on forest rd. to S., ad. ♂, juv. (3 yrs.?), ad. (?) , in same tree as seen 22 Aug. / 0938, came before road camp, saw more in 1/2 mile of treetops. Hat; $\frac{1}{10}$ clouds. / 0945, Pridham's jet., ad. w. black inf. + about 3 in tree; in alarm descended to lower level (dense veg.). Nearby, 3 ados. together in branch tree (bsw photo); possibly same grp. / 0957, halfway up Pridham road, to E. saw 3 ad + ad.; 1 juv. (3?). Ad. groomed ad. / Back at Km. 6, about 12:40, 4 adults low (15') in tree where seen earlier, in mod. rain. Some sat in rain w. head low forward, as shown in rain (C). / About 5:30 p.m., in patch tall forest 1/2 mi. E. of Kanyawara Forest Sta., saw 1 or 2 groups. An adult came out on bare limb of dead tree high over road, perhaps to look at me. Apparent second group, 300 yds. distant, seen by Poff and counted as 13 (no info. identified). Blues seem most common here, but redtail present; & hornbills, turacos. We heard calls, gurgling, repeated, about 6 p.m., & these might have been Colobus. (Pridham said ^{common} one call toadlike). Also many other unidentified calls, possibly some of chimpanzee. / Mr. Muziga reported seeing 2 on ground in short (1 ft.) grass near Kyagawa (n. Lake Murchison).

27 August 1965. Evening, about km. 6.5, 4 (w. black inf.)250 yds. E. of road w. top tree w. $\frac{1}{4}$ dead branches.28 August 1965. 0930, at least 4 in tree w. few leaves about 200 yds. SE of corn arborium n. K-6 sign on road. Redtails

Colobus abyssinicus

nr Ft Portal, Uganda.

28 August 1965

Kibale Forest, nr Kagero Saw Mill,

in trees near there, within 50 yds. / 1135, foot Pridham's road,
8 in 80' mod. foliaged tree. Can almost always see, in this
area or across road to E.

29 August 1965. 0900, across road from Pridham's turnoff, 5 ad.
(1 ♂ + 2 ♀), & 1 Mangabey within 20 yds. closest. / 0925,

by road about .3 mi. S. of Pridham's jet., ad. ♂ called-
alone. Throaty low rattling, about 4 "notes" per sec. 5-6
grating sounds in series; higher than lower tone - perhaps
middle Gor scale. Oft start & end with a "chuck" or
"cough," giving head jerks then. The la-sol effect may be
from change position chuck or hiss w. continuous vibrating
sound. First time one seen as called. Mouth opens for call.
/ 0950, mi. 1.9 on road, 5 odds. in trees. at least 2 ♂♂, one with
kink in tail ; & gr. ♀. (A blue monkey in area too.)

Semliki Plains1-3 September 1965.

Toro Game Pres., nr. Wass Camp

In evening & morning, saw a herd within $\frac{1}{4}$ mile upstream
from camp. In morning saw 6+ in one tree, & 3 in another
about $\frac{1}{4}$ mile distant. / Pridham said that Buschner saw
from his camp, on W. side of road on the riverine forest,
downstream from iron bridge. / about noon of Sept. 3, from
pt. nr. the safari lodge, I saw 4 goss. 3 to 6 and heard
calls from 5th area. These along riverine forest, &
visible atop trees from a few hundred yards. Good area
for study nos. & peripheral contacts.

2 September 1965. Fishing along shore of Lake Albert at
extreme SE shore, near escarpment & falls, I saw 2 sea-

*Colobus abys*2 September 1965.

Lake Albert, To Toro, Uganda

several groups (6 max.), including 2-3 on rock talus. Trees only 30' tall but good shade cover. Verets also seen in same area. No white inf. seen.

28 August 1965. About 6:45 p.m., 1 ad. ♂ 100 yds. W. of road about 50 yds. Then nr. mi. 1.0, 5 ad. (1+1♂) and 1 redtail ^{at} edge group. At 7:15 p.m., next to road camp (mi. 1.7), 6 (incl. 2 black inf.), still active in dusk. [= mi. 0.6]

4 September 1965. About 5 p.m., 100 yds. E. of K-6 signs, in a compound lived tree 60±' tall, 10. Includes 7 ad., 2 juvs., 1 one black inf. Feed small fruits or leaves. One mangabey sat quietly in group, others, within 3' of it at x. Returned 1810 and in same tree saw 6 + mangabey. About 1800, foot of Pridham's rd, 10 ad. 2+juvs. and no inf. Rain started.

29 August 1965. 6 p.m., rain. On road nr. 0.9, 6 w. 2 mangabeys 100' distant, sitting in rain. One ate complete leaf. Colobus walked within 3' mangabey but no reaction obvious.

30 August 1965. 11 a.m., nr. mi. 0.9, 6 w. 1 redtail in same tree. Once a Col. walked 3' past redtail, but no overt reaction seen. Col. ate green leaves about 6' from ground (in 60' privately compound live. tree). At least 2 are ♂♂.

5 September 1965. Nr. mi. 5. 7 in evening in forest, & with group redtails (or at edge) in trees. At about mi. 2.0, a group of 5 ad. - all ♂♂!

Kibalti Forest

S. Kagera SM

[= mi. 0.2]

(Colobus)

Colobus abyssinicus

5 September 1965 Kibale Forest, Ft. Portal, Toro, Uganda

About 4 p.m. on lower Pritham's road, 6 ind. 2 juv. in tree (same as 10 seen 4 Sept.?). | Calling heard from our house at Selitoli in evening (& next morning).

6 September 1965. In band of 10, at least 2 ad. ♂♂, + 1 white infant, [where?]. Murchison Falls N.P., Uganda

7 September 1965. Warden (whether?) said along river banks ^{8 Sept. 1965} forest, especially n. Karuma Falls. | Entebbe - Tshawshia in Game Dept. labeled Nambala Forest, Kaduna, Karimoja - C. a. matschii.

13 September 1965 Kibale Forest Toro, Uganda.

From Selitoli forest station, heard the grating bands during the moonlight night several times. | 0830, 2 with 2 C. mititensis in 25' tall tree near house. and in 80' tree of mod. dense foliage, 7, w. one in adjacent tree; these 150 yds. S. of house. There 8 ind - uded no juvs., 1 white infant, at least 1 ad. ♂. | 0940, started by car S. on Kagera SM road. Mi. 0.2, 7 or + including 2 ♂♂ ad., 1 ♀, 1 juv., 1 black inf. These to E of road; to W., perhaps sep. gp.; including 1 black inf. | Proceeded slowly S. 1030, slightly S. of Pritham's road, mi. 1.1, to W. of road 7 ad. resting in tree w. sparse foliage. These ind. 07 ad., 3 ♀ ad., no juv.; 1 black inf., 1 reddish, 1 red colobus! One gave grating 5/sec. vibration Ta-ta call repeatedly for 10+ minutes; others in gp. seemed to pay no attn. to it. Apparently the ad. ♂ only called. Red col. within 6' of Col. at X, but no reaction seen. After a few min. silence, caller started calling again & dashed 50' thru branches as if chasing another, but M. inf., red col., & at least 2 others stayed put behind him. | ^{11/10} 1040, 200 yds. up Pritham's road on the S. side, 11 - ind ad. ♂, ad ♀, 1 juv., + 1 black inf., + 2 red

*Colobus abyssinicus*13 September 1965.Kibale Forest, Tororo, Uganda

tails, which groomed each other. | Then on S. Mi. 1.4, w. of road, 10, ~~and~~
 + 1 white inf. (no juvs.) [Counted again about 2 hrs. later; also a
black inf., at least 3 ad. ♂♂, + 1 ♂ with torn tail.] | Mi.
 1.8, w. side road, 5 ads. including 2 ♂♂, 3 ♀♀; largest ♂ had hunks
 in tail $\frac{1}{2}$, as noted 29 Aug. at approx. same site! No juvs. or juvs.
 at 1230, mi. 1.7, to W., 6 incl. 1 juv., + black inf. Cloudy; 9/10 now.
 Saw no more by Nyigata Bridge; drove on to mi. 5.7 + back but
 saw no other Col. g.p.s. Back at mi. 1.1, however, to $\frac{1}{2}$ W. one ad.
 ♂ eating new green leaves on nearly bare tall tree, alone. // 6 p.m.,
 200 yds. up Pridham's road, to S. 11 again (1 juv.?). Mi. 1.0,
 5 col. ads. (1 ad. + 2 ♂♂) and 1 blue in tree, blue high at edge in Mitch-
hamia (possibly more, incl. ♀ w. black inf.).

14 September 1965. 0825, alto-stratus overcast. Near our Sebit-
 ali house, 7 + white inf., including at least 2 ad. ♂♂ + 2
 ad. ♀♀. One ♀ took inf. from another ♀ + carried it down tree.
 Big ♂ once dashed 10' toward me in branches (200 yds. dist.) +
threat face forward, mouth clamped, in apparent threat. Nipples of ♂
 large + conspicuous. In grooming tail, held up w. hand as
 if heavy. | 0909 K-6, to E., 6 ad + 2 juv + 1 black inf. |
 0920, mi. 1.8, E., 11 ad + 1 juv. (or ^{black} inf.) + white inf. at least
 3 ad. ♂♂, one with distal $\frac{1}{4}$ tail missing (no tuft). | 1230,
 mi. 2.8, 3 ad + ads. in trees. | 1250, mi. 1.45, E, 9 ads.
 w. normal tails, incl. at least 2 ad. ♂♂ + 1 white inf. |
 Mi. 1.2, w, 5 ads. + 1 black inf. + 1 C. ladrunculus, feeding on leaves
 at 1300. Mi. 0.3, E. side, 7 (1 juv.) + 1 bl. inf. nr. Km. 6
 sign. The juv. w. mother w. inf. | 6 pm, trees 150 yds. W. of

long n.
photo

at Thika

*Colobus abyssinicus*14 September 1965

Kibale Forest, Toro, Uganda

Selitoli house, 10[±] ind. black inf. + 1 C. badius; gp. spread 100 yds. Feed by grab handful fresh green alder-like leaves, bite at branch in hand w. soil litter, & chew 10[±] x before next bite. Sometimes pull branch to self & eat from held branch. (C. badius fed same branch within 6' of C. abyss.). 11045, 70' up dead stub 300 yds. W. of Selitoli house, well after sunset, 4 ad. + black inf. + 1 red colobus. Colobus Stub 50 yds. W. of where seen morning of 12 th. At 1845, C. badius bounded up & down on limb, + ad. ♀ (w. large inf. or juv.) left perch for another 10' dist., & C. badius took place (supplant). Then 6 so in tree top in 3 pairs, larger w. smaller (juvs?), chm larger over back smaller one. The C. badius left 7 pm. 2 pairs remained on stub all night - still there 7 a.m. next morning.

15 September 1965. By 8 a.m.; only 3 - larger juv. gone. 9/10 absent & occur sprinkle. The 3 stayed until after 0915. If all one group, spread 200+ yds. at night. Again saw ad. w. white inf. (None this area morning of 16, 17, 18). 10950, E. of K-6, 6 ad. + 1 juv. + 1 black inf.; ads. incl. 20707, 279, + one semi-ad. 11010, 0.35 E, 1 lone ad. ♂; concave crown. 1055, .2 up Pridham Rd., 200 yds. SE, 11 spread 150 yds.

16 September 1965. Mi. 2.75, E, 5 ad. + 1 juv. + 1 black inf. ad. ♂ bounded thru branches as if to threat me. Few seen S. of Nyigata R. along forest road to Mpanga R.; because more closed forest? 11710, 1/4 mi. E. Pridham's house, 1 rested on branch & a C. badius in same tree 50' distant. 11710, Pridham Rd. 0.2, saw 13 (3 juvs.) incl. 1 ad. ♂ & gr. juv.

Colobus abyssinicus

16 September 1965

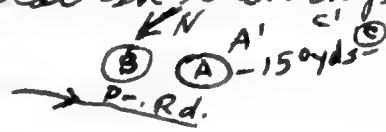
(Tree A?)

Kibale Forest, Tororo Uganda

Eat new green leaves, about 4" long. One or w. slightly conc. crown, l up lip cut (sneer-face); not largest or. 1/1735, much moist. + feeding. 2 juvs. are or or. B+W photos 7 to 12. 1800, mi. 0.6, 2 ads. in dead tree to E. No rains p.m.

17 Sept. 1965. Thin cirrus clouds; nr. clear. 0935, mi. 1.1, 1 ad. or.

0950, Pridham Rd. - 2, 9 in same 2 trees as last eve, incl. 3± juvs. L skin one juv. nude anteriorly. Smallest juv. leaped tree A to B; grabbed branch broke + fell. Later gr. by ad. ♀. at same time in tree C, 100 yds. SW of A, 1 red col. and 9 C. abyss. (1 inf. seen). Probably 2 bands. High in tree B nr. trunk, a flattish branch platform where 2-4 often sat.



1025, 4 in B; 9+ inf. in C. 1030, 8

in B 8 in C. 1055, 10 in B, 8 in C (incl. 2 juv.). Red Col. sat 3' from ♀ C. abyss. / Tree C, ♀ gr. inf. (gray lumbar). Ad. or highest in tree B for long period; slight kink tail? / 1120, Accipiter flew close to top tree B + landed 50 yds. distant; soon all gone from B, but ♀ still in C, resting (so prob. sep. grp.), + C. badius still. / Gray ^{Type C} backed inf. played w. larger juv.; at least, other juv. in grp. / anterior view white area perineum of ♀ OVD. side O. / 1145, single C. badius to tree 100' E. of tree C. + fed on leaves. / Highest in tree C for many min. was ad ♀, sitting alone. Another ♀ gr. gray-backed inf. while a yearling (?) ^{dovey} alongside. Two were sprawled flat on branches, resting. Sunny; 6/10 cumulus. / 1215, tree C, occas. desultory eating leaves; 7 visible incl. inf. (young). Some sprawl flat on branches, inactive. Clouds 8/10. Evidently moist in mid-day. / 1735, mi. 1.25, tow, 6 (1 juv) + 2 C. badius + 1 redtail. Ad. or separate, descended to 15' + stood at ground (at red C?). No info.

*Cobas abyssinicus*17 September 1965

Kibale Forest, Toro, Uganda.

in hand; at least one other ad. ♂. Barely ♀ reddish dashed recklessly thru trees, & there were 4± *C. mitis* nearby; possibly big ♂ *C. ab.* chasing off other spp. at s. end territory. Then he returned alone toward others.

~~1755, mi. 1.45 un~~ / about 1800, m. 1.7, 4 ad. ♂s *Melchioria* flowers; at least 2 ad. ♂s. Band of 12± reddish within 100 yds. Back at 1.35, 1845, 6 ind 2 juvs. (nowhere seen earlier; prob. same gp.). Big ♂ dashed 100yds. S. + later 100 yds. N. thru tree, or if chasing others. / 1900, tree A (& adj. to SE), 7 (1 w. inf.), and in tree C. 4; two others singly, one N. of Prsh. Road.

18 September 1965, 0830, still + in A, 3 in C, feeding on leaves. Calm, some clouds; Ruwenzori summit visible. One ad. ♂ in A has black scar in white R brow (2 other ♀♀ + juv ♂ in A). Additional 4 in thick green tree (*Melchioria*) m. C. So, remain all night in this area; both groups. 10900, one ♀ 50 NE Prsh. road, atop tree, alone (m. 0.2). Of 5 in tree A, one ♂ juv., 2 juvs., 3 (?) yrs., 2 ad ♀. Eat fresh light green leaves of tree A. D. / 0915, tree A, seen feeding - 11 seen. Chew each mouthful 10+ x. ♀ ad. gr. juv. (1 yr old?). / This gp. includes 3 ad. ♂♂ - bartender ~, sneery, snagtooth (upper lower R canines mal-occluded + upper protruding), ad. ♀ w. juv. 1 (or cig.), ♀ seen R brow, ♀ juv. 3 yrs., 2 juvs. ♂♂ 2 yrs., + 1 juv ♂ 1 yr.; + ^{1 ♀?} ♀. Approx. (4 juvs. seen). / 1000, I approached tree A + markings then started to jump to tree B, one at a time; photod. Still 5 or + at tree C incl. Big ♂. Tree B, ♂ (sneery?) gr. & scar R brow; later reverse. / Tree B approx. 5 juvs. incl. yearling. One ♂ nested sprawled prone, legs dangling over

*Colobus abyssinicus*18 September 1965

Kibale Forest, Tororo, Uganda

limb. / 1020, all gone from tree C. Mod. breeze, 2/10 clouds. / Tree B "snagtooth" gave way 6' when "bartender" ♂ approached. Two dozed in shade leaves in tree B; snagtooth dozed ^{sitting} ~~sitting~~, doubled forward. / 1100, tree A, gp. of 11 incl. 3 ad. ♂♂ ♂. Gradually jumped tree A to B, 2 ad. ♂♂ near last. about 1130, all were from area. / 1125, 1 adult alone to W. at min. 1.25.

None seen near Prudham Road 0930.
19 September 1965. 1030, along Elephant Contr. Path, 3, fairly wild, 20-30' up in mod. foliage. Walking toward Mpanga K., 1035, heard the loud gurgling bands from big sparse-leaved trees. (Reached river 1045.) About 1200, near same spot, heard 2 howling perhaps 100 yds. apart - territorial calls? Muggy day. / 1230, 0.1 on Prudham Road, 3 on road seemingly feeding, perhaps from center grassy strip. Included the "snagtooth" ♂ of usual tree A band. They dashed back through thick herbaceous vegetation + up tree (to N. of road). Others in trees on S. side, including "bartender" ♂. / 1245, tree C, 9 - 2 ad. ♂♂ ♂, few. gray-backed inf., ♀ w. black inf., + 3 more odds. Sprawled on branches; one, with all legs dangling. ♀ w. juv. on same branch, 8' from ♂. / 1400, tree C, band of 11 including inf. Of other groups, 4 juvs. only stayed together in tree, following each other playfully (no contact seen). 2-3 x more in next hour I saw them together, without others (one about 1 yr; 3 2-3 yrs.; one of larger a ♀). / The 11 incl. juv. est. 1 + 2 yrs. old. / One ad. ♂ in tree held nose toward another + turned head back toward it to side, possibly smacking lips; then walked away (presenting?). / 1425, tree C, of 10, 1 inf; 2 ad. 3 2-3 yrs. juvs. Also one red tail within 8' of some; later



Colobus abyssinicus

19 September 1965

Ribale Forest, Tororo, Uganda

it sat 10' lower than Colobus. Colobus calls 1/2 mile to E; the monkeys looked toward, & one rose. | 1500, 0.1 mi. on Pritham Rd., the 4 monkeys again in one small (30') tree, the rest of band not present. | Ad. ♂ or gr. ad. ♂ in tree C; then both lay on side on branch in hot sun. By 1520, three individuals in same big tree w. the Colobus. Hot & muggy. Short rain about 1700.

Menzies said monkeys ^{again} ^[= 0.85] near road camp after absence several days.

20 September 1965. 0830 tree C near Pritham's Road, 6+, but none in trees A, B. Calm; 4/10 alto cumulus. Those in C resting 1/4 way from tops. | 0850 mi. 1.15, 100 yds. W., at least 3. | 0945, mi. 1.28 W., one adult ♂ in Markhamia top. | 1010, 6+ in 30' trees just S. of road camp (0.9 mi.), & 6+ across road in Markhamia + adj. trees. I identified "snagtooth" & saw two juvs, so doubtless band of tree A. They fed on, one on flower buds (a fruit tree). | At mi. 0.05 mi. up Pritham Road, one ♂ in 40' tree; dashed about vigorously; = "bartender"? | 1030, none in trees A, B, but 6 or + in tree near tree "C," assumed the C group. | 1300, mi. 0.8, three in tall stub at edge tree in nearby area; adult ♂ included. | 1310, tree A, one ♂ - perhaps "bartender." Calm, muggy; 8/10 overcast. | 1615, mi. 1.15 E, 7 (5 ♂ 2 ♀) ads. Feed on tiny new leaves of 60' tree w. little foliage (across from Pritham Rd. entrance). Why so many ♂♂, & no juvs? Spaced out - at least 10' from each other. about 150 yds. from the 7, mi. 1.1 W., adult ♂ (2 seen here at times). | of 7, ♀ walked 6' from ♂, but no interaction. Overcast; rain & wind. | 1800, 3 in tree near E. edge tea field, about

*Colobus abyssinicus*20 September 1965.Kibale Forest, Toro, Uganda

0.25 on s. side Prid. Rd. (100yds. N.W. of tree C). But none in trees A, B, C. | after showers, 1800, still 3 there & none in A, B, C. 1825, at least 5 ad. in 3 trees to E. of mi. 1.15 (prob. the same). the closest 8' apart, 10 to 20' from tops tree having little leaf cover. And still an ad. at 70' up ^(tiny) fine, new-leaved tree at 0.5 on Pridham Rd. Overcast & drizzling. 1850, still 2 or 3 at foot tea field, on 0.25 Pn. Rd. (the usual "tree C" group?).

21 September 1965. In morning, 0800, the 3 still there. | 0920, Pridham Rd. 0.5, 2 ad. ♂ (crown ~) in bushy tiny new-leaved tree. When approached, they dashed to another tree, then descended to ground, crossed through brush & herbs, & ascended short dist. up slender more foliose tree (^{B4ju} photoed in first). | The group of 7 adults still to E. of mi. 1.1, same tree as yesterday, eating tiny leaves (single alt., leaves folded, pinnate veined; hang down both sides branch Ø x-sect.). Then 0935. | 0940, mi. 1.2 to W., 5 ad. + black inf. One descended to 15' to feed on Morlobania flowers. Apparently; mother w. inf., 2 other ad. ♀♀, 2 juv. ♂♂ 2-3 yrs., big ♂, semiad. ♂; one redtail in same tree. | Heard the grating calls, ~~when~~ about 1/4 mile to E of mi. 1.2. Alto strata; calm. | 1010, mother w. holding. stayed 100' from others, in crown umbrella tree. A C. badius in same tree came to 6' from her & stayed 10± min.; then departed to S. | 1100, across road, to N. of sawmill, saw 3 ad. and 3 redtail 50± yds. from road in shrub & small tree vegetation. Once a redtail started out branch toward Colobus, & latter dashed at it & it retreated.

C. badius

Colobus abyssinicus

21 September 1965

Kibale Forest, Toro, Uganda

About 80 yds. E. of these, 7 more (1 juv.); all same band? Nearly now
5± C. bairii within 100' of alysseum. There in forest to N. of
highway & adjacent to it. They ate whole fresh green leafs, Melaleuca
size & shape (opposite, simple, crinkly). One ad. in branch tree hit + pulled
off short leaf sprouts from trunk. 7 spread 100 yds. or above & c. juv. in
one tree (photo; skyline). / 1225, mi. 1.1 on Senniel Rd., 2 ad. to E.
and 3 to W. in trees. / 1600, Prich. Rd. 0.25, 50 yds. to 5, 6 ad. +
black inf. carried (tree c gray?). Juv. juv. 2-3 yrs. None in trees A, B,
C. / 1625, mi. 1.3 W., 10± incl. juv. Scamper thru trees or if
alarmed. / 1830, 1.9 E., lone ad. or in tree. Another lone ad. or
at mi. 1.6 W.

22 September 1965. Partly cloudy; clear, calm. Walked trail at NE corner of
the field & saw 5 (+ one inf.) in ⁰⁸¹⁵ ~~tree tops near stream~~^{trees}. Few dead tree here.
(C. leadbeateri seen yesterday in bareish tree in vicinity). / 0910, Pritcham
Rd. .05, 2 ad. ♂♂ 40' up, together (to 3'). One descended when we were 200
yds. distant (same 2, doubtless). / Mi. 1.35 W., single ad. dashed
thru trees (same as before here?). / Mi. 1.2, gugle calls to E $\frac{1}{4}$ mi.,
up to 13 in succession, rising in pitch, then descending: / / / / / / /
1000, .05 Pritch. Rd., ototops from now low tree to w. None in tree A, B, C, but
4 + to 5. of 0.25 (as earlier). Rain at 1 p.m.

23 September 1965. Mod. foggy; shater, calm. 0755, on trail to creek at NE corner Prichard's tea field; 5± miles ^{with} ~~from~~ 10± C. bodinei in scrambling thru leafy tree. Jumps shater, starting farther out & ending shater than C. bodinei. Saw 1 carried infant. In jumping same gaps, start farther back & end farther in than C. abyssus, jumping higher & with greater abandon. 0810, 17 at ~~in~~ top of most flings 100 ft. tree (single Dioscorea, +"), including inf. and 1 or 2 juvs., 100 yds.



Colobus abyssinicus

23 September 1965

Kibale Forest, Tororo, Uganda

walls
Census
1.1 → 2.1

0840, Pridham Rd. .05 w., ad. ♂ 40' up, + roosted 100' away from him. The colubras (clumped?) to 6' from roost & sat peacefully in their foliaged tree. / 0850, mi. 1.2 E., 7 ads. lolled in 30' tree (prob. the 50-2 ♀ gos.). Resting, sprawling. / I walked S. 0845 from mi. 1.2, 0905, 7 (1 large juv.) in bare tree top 50 yds. w. of road at mi. 1.4. ⁰⁹¹⁵ 1015, mi. 1.55 w., one adult 100 yds. w. 0940, turned back N. at K-8. Steady, slowly brightening, overcast. 1005, 1.53, 2 ad. ♂ in *Mitchamia* + adj. 80' tree; one dashed off 50 yds. + other soon followed. 1020, the 7 still at 1.2 E. These all colubras seen in census with 1.1 to 2.1 + return, the others now 1 and ¹⁺ 5 ± roosted in walls. / 1030, Pridham Road, saw ^{none} ^{tree} at A, B, C or elsewhere. // 1200, in area of 2 ad. ♂♂ to w. of mi. 1.1, ad. ♂, ♀, juv. ♂, ♀ w. blocking. / 1220, the 7 still at 1.2 E. Occas. sunshines; 9/10 cloudy. / 1245, adult apparently chasing (following?) another ad. near 0.1 E. on Pridham Road. At 1 pm one ♂ there. It descended when I to 40 yds. from tree. Hot, calm, bright. / 1400, at least 4 ads. at 1.2 E. where 7 had been; all in shade in foliaged tree + quiet. The 1.1 w. heterolepis gp. present or augmented; apparently 4 ad. ♀♀. And across road, E. of 0.1, 2 ad. ♂♂, prob. unpaired. / 1625, ^{1.1} ^E 0.1, one ad. ♂ in tree. 1.1 w. several. 1.21 E., 6 ads. seen. Rain showers then. I saw 2 in near bare tree (finer new foliage) at forest edge of Pridham's tea field, 200 yds NE house. Later C. ladies in this tree. / 1800, sweeping forest tops 1 to 3 miles SE of Pridham's house, I saw gos. of 4, 1, 6, 1, + 1. These often sunlit + clearly identifiable at long range.

24 September 1965. 0745, from Pridham's house, saw ^{some} some in rock
leaved taller trees at edge forest at N. edge tea field, 300 yds. NE of house.
at least 4, incl. adult w. black ing. / 0815, drove S. on road. Mi.
1. 4 ft. w.
+ 2, at least 5 (where 7 yesterday morn). 0830, E. of 5. ?, heard the

*C. abyssinicus*24 September 1965

Kibale Forest, Toro, Uganda

gurgling bands of one scat. / 1100, edge forest at NE corner Prisham's tea field, 2 ad. ♂, 2 ado.; juv., + inf. (= 6) resting on high branches. One alarm at me, ♀ w. inf. away, but 3 ads. stayed scat min. / 0815, mi. + 4^w, 5 ad. (when 7 seen yesterday morn). 0830, mi. 5, heard gurgling bands 7 mi. SE. / 1100, edge forest NE corner Prisham's tea field (start of "chenip path"), 2 ad. ♂♂, 2 more ads., juv., ll. inf. (= 6 ad.). When I to 50 yds., ♀ away w. inf., but 3 ads. stayed. Then I saw 5+ in tree 50 yds. E. of these, + latter gp. moved E. (alone gp.?). This second gp. 2 big ³, 3+, 2 juvs. (at least one ♂), + ? Big ♀ crown concave in front view. About 5 yds. to W., a band of ⁵⁺ C. badius thru trees at lower level. / 1215, mi. 1.2 E., 7 adults as before, resting in shade in small-leaved tree. Approached, crossed to other tree, then down to bushes + away, but some climbed up 20±' after 50± yds. Left singly, widely spaced. Understory much taller to 6' tall. This band very constant location. Feeding had been in sparse non-leaved Celtis trees.

<sup>km/k
tail</sup>
25 September 1965. Walking S. on road from 1.0 starting 0835, 5 ad. ado. at 1.2 E., 5 ad. at 1.45 W., 5 ado. at 1.97 E (where last eve). These last included kink tails of ^{}, same as prev. seen at 1.4? In Celtis tree 40' tall. ^[Back at ?] Got at 1.45 W. 7 (incl. 2 juvs.) + 1 C. badius. 1040, 1.1 W., 5 ads. + juv.; same all Celtis.

Prish. Rd. 1.3, 150 yds. N., 9 + inf., incl. 2 ♂♂, 2 ♀♀, 2 juvs. One, tail down but rear → another, turned head back to side + opened & closed mouth scat X, as if in equivalent of presenting + lip smack. Then walked away. In census walk about 1710 saw gp. 6 ad. at Prish. Rd. + 05 W., as before. and gp. 7 ads., prob. 1.2 E gp., at 1.95 E. Also usual gp. about 7 at 1.48 W., + 5 ads at 1.97 E. One of last "kinky" adult [♂]? or. Kinti said he + another originally both croaking,

C. abyssinicus25 September 1965Kibale Forest, Tororo Uganda.

in separate trees, + crowded even harder when moving thru trees. Sometimes one seemed to give the "chump" + other the crack. Not seen to chase each other or others. At 16 This gp. 2070? 3♀♂; fed in Celtis.

26 September 1965. 0815, from Budham house, 3 about 500 yds.

NE in forest w. some tea field, high in sparse foliage. / about 200 yds. N. of tea field, in Pithecellobium N. cover forest, saw 7 in top tree (Maclehamia w/o flowers?); included small + larger juvs, apparently 2070?, 4 3♀♀ ads. Usual gp. of this cover area? / 0930, 9/10 ad. str. str., calv. None in trees A, B, C w. Pithecellobium road. But 2 in Slender Maerua ^{atop ad.} to E. of .10 or same road (1 or both ad.). 0950, 1.1E, 4 or + ads. (the usual 1.2E. 7?). 1009, 92W, 6 ad. incl. ad., ♀, 2 juvs. (larger + smaller both ad); then the tree "A" gp. probably, as I saw the ♀ w. black scar in R. brow. In 10-15' Trema and other small tree betw. road + larger trees. Later 6 at once in near bare Celtis, eating small green leafs; pull branch to mouth + bite off leaves. / 1045, mi. + ¹ 1.44W., 5 ad. incl. 2 juvs, + one C. hindsii (always one w. the gp. of 7 here?). Mostly in Celtis, tho Carapa adjoins. 1.68E., one adult. / 1725, 1.68W., 4 ad. in area w. 5 redtails, 1 C. hindsii, 1 C. mitis. 1735, 1.95E., usual 5 ads. including kind-tailed ad. / 1745, 2.65W., in trees on hill, 4 ads, + white infant.

27 September 1965. 0820, mi. 1.0W. in tree edge forest in open near road, the "A" band including "snagtooth" ad. ad., scar R brow +. This gp. 13; 3 ad ad, 2 subad. ad ad, 5 ad. ♀, 3 juvs. (ad, ♀, ?). Ad. gr. juv. ♀; ad. left; juv. to her + again groomed. "Snagtooth" + scar brow ^{all together} + together on bare top of tree. / 0900, 1.1E, 6 ads.

spread 80 yds.; incl. 2 ♀♀; probably the 1.2E usual 7. / 0910,

*Colobus abyssinicus*27 September 1965.

Kibale Forest, Toro, Uganda.

1.33 E., 4 ad. in 100' bushy Balanite tree, where rarely seen; wary, & retreated when I was 200 yds from tree. | 1.35 W., 4 (at least 1 ad. + 1 ♀) juv. 1 in tree near C. badius. One sat 3' from badius. C. a. coughed w. tongue out, ^{making} "raspberry" sound. | 0930, 1.4 W., 1 ad. & nested atop tree (where sometimes gp. of 7). 1.7 E., 07 eating Mitchania flower buds. | 1030, seat of band A^{0.1} at 1.0 W., & 2 C. badius in same tree. Subtle, but prob. retreat slightly from badius. | 1100, Prich. Rd. ^{0.1} E. in well foliated (Olea?) tree, 6+2 inf. . And (Not part band A??). | ^{Pr. Rd.} 2 N., 7 inf. 2 juvs. (1 ad, 3 ♀ ad. ident.; 1 juv. w. ad. ♀) in Celtis & Morinda Mitchania. Ad. ♀ gr. ad. ♀ | 1600, 10+ in same tree as seen & photod this morning, 1.0 W. | In census also saw gp. at 1.1 E (5 ad.); 1.37 E (5 incl juv.) ♀; 1.95 E (5 ad.) (at 1.37 E, 5 were seen in morn. with C. badius). | at 1.13 E, 5 ads., & seemed to eat spherical fruits of (Coffea?).

28 September 1965. Band of "A" at about same place as yesterday morning, 1.0 W. also 7 ads. to E. of 1.1 as usual. Overcast; showers 11 a.m. | 0915, 2 in area of 3 C. badius in forest on Pricham's NE corner. | 0955, to K-6 (mi. 0.3) area & saw gp. of 11 in partly bare tree 150 yds. E. Included 3 inf. (held by mothers; grayish lower back), 2 ad. 07 07, 4 ad. ♀ ♀ (3 with inf.), subad. ♂, juv. 3^{gr.} ♀ (with ♀ w. inf.). | 2 ♀ ♀ together; one took (or was given) inf. held by other, & no further interaction betw. ads. All within 20' dist on same big open limb. One inf. (yr.?) to Mother holding inf. & passed her inf., then sat calmly alongside. Ad. ♀ to ♀ w. inf.

2
2
1 subad.
3 ♀
3 ad.
11

Colobus abyssinicus

28

27 September 1965

Kibale Forest, Toro, Uganda

and latter gr. first. Ad. ♂ desc. limb 6' to 2' from ♀; his penis (flesh color) was erect for 5⁺ sec. Juv. 3 (yr. - est.) to ad. ♀ and groomed her; then reverse. Two cubs. wrestled + lit playfully, rhesus-like. Ad. ♂ gr. ♀ briefly. Other ad. ♂ sat quietly 1' from ♀ w. inf. ♀ groomed cubs. much. ♀ gr. ad. ♂, which then lay prone. ♀ w. inf. 6' to another ♀ and groomed her. Times of resting + grooming; no feeding. A few raindrops 1015. ♀ to ad. ♂, which crawled + she groomed him. (Apparent chimp cries $\frac{1}{2}$ mile E; no react. Colobus.)

Juv. (2-yr.) held sun inf. near betw. his knees or ^{low} in mounting. (Inns. = 3 inf., juv. 2, juv. 3⁺, subad. ♂.)

Carla K. saw C. badius ascend tree; C. alrys looked nervously toward it (but I approaching in grass). C. b. sat 1' from a C. a., which soon moved up; C. b. moved up too, + after a couple of moves sat in former place of the C. alrys. Probable example giving way to C. badius. / 1400, 100 yds. W. of Pridham's NE corner, 4 ads. + 2 inf., with 3 C. badius in same tree. 100 yds. E. of corner, 5 ('juv.; ^{incl. ad. ♀,} 3 gr juv. ♂) in small-leaved Celtis. 1500, usual 7 ads. at 1.2 E. / 1500, 1.4 E., 4 + inf. (ad. ♂, subad ♀, ad. ♀, ♀ w. inf.), and at least 3 C. badius within 200 ft. Rain showers. /

(cont'd.) 1735, 100 yds. E. of Pridham's Road 0.1, 12+ incl. juvs. eating leaves vigorously; apparently band "A" (= 13). In Celtis and Olea (thick foliage; eat?). / 1740±, 1.2 E. juv. 5 ads. sat tiny new Celtis leaves. 1.35E., ♂, 3 ♀, 1 inf. again. 1.95E., usual 5 ads. (w... back tail ♂) in 3 trees, spread 80 yds. - constant location. 2.2E., 5 ads. + inf. at site (mostly Celtis) where group

*Colobus abyssinicus*28 September 1965Kitsale Forest, Tororo Uganda

of C. badius seen in eve a few days ago. 1.85 E., 5 (w. juv.) t. inf. Then about 1845.

29 September 1965 alto stratus overcast; calm. Saw no monkeys from Pritham's House. Walked forest edge to Chimp Path, N. to creek, & saw but 1, heard 1. But $10 \pm$ (prob. "A") in area E. of P.R. 0.1 (saw & near R. brow). / 1.22 E., 5 ads. in 2 trees (usual 5) sat quietly; or sat close behind w. hand on her shoulders for 10^+ sec. 1.25 W., 3 out in 50' Markhamia. 7.15 W. About 12 m., usual hand A. nr. 0.1 on Pritham Rd. Disturbed by photographer's approach. One reacted up & struck another above. These are of tamest groups, & lately fairly constant this site in Celtis, Olea, & Markhamia; visible from Rogers Rd. too at 1.0 W. / 1645 & again an hour later, lone ad. at 1.3 W. in Markhamia tree (some C. badius within 50 yds.). The usual 5 ads. at 1.2 + 1.95 E. 1.2 O.E., 7 ads. (as usual), all in one 40' tall Markhamia w. few flowers.

30 September 1965. Thicker river bank. P. Rd. 1 E., large gp. in Olea (= A). Mi. 0.4 W., Rogers rd., 7 ads. + the gray inf., as seen last eve (inf. black brown, & flocks, but most back & tail gray-white). Inf. some 2' from mother, appar. feeding self, in Celtis tree with small leaves & flowers. / See C. badius notes on inter-adults listw. species. / K-6, more about 1030. But usual 5 ads. at 1.95 E (3 in well-leaved Celtis). / Area Njigata bridge, rarely seen tho many Celtis & Markhamia present. Perhaps big trees too isolated for easy jumps between?

Colobus abyssinicus30 September 1965.

Kibale Forest, Toro, Uganda

(1.2 E band)

1650, 1.1 E; 7 ad. as usual; some in coffee (?) trees, which bear 15 mm fruits. Back at 0.4 W., saw 7 ad. again, same place; 1 gray inf.; and one ad. C. badius sometree as some.

1 October 1965.TO: Toro Game Preserve, Wasa R., Toro, Uganda
(E.)

Arrived at old Bushmeat camp $\frac{1}{2}$ mile downstream from Wasa R. bridge about 2 p.m. Saw 5± in tree 100 yds. from camp. Across river to N., 6± in tree n.r. river. From Wasa Camp, $\frac{1}{4}$ mile above bridge, saw 6 ad. in tree across river, to W., resting. /Conspicuously longer white hair on back & tail than at Kibale, & tail tip cleaner white, so white more conspicuous. Mixed shrubs & trees along river in irregular belt often $\frac{1}{4}$ mile wide; few trees over 80 ft. /1640,
SS NE "Gp. A"

A

150 yds. S. of camp, 9 (2 juv.) in tops & side fresh-green mod. leaves (semi-dec. alt. deciduous) tree. Walked upstream; 1713, $\frac{1}{4}$ mile W. camp on N. side river
"Sp. B" diam.

B

(along large $\frac{1}{4}$ tree, 3 ads. There in isolated patch 100 yds. dist., to leave west T.W.

C

cross 100' min. of grass, to W. Tail tufts conspic., esp. when run. +1805,
(Gp. C") E. 1750,
200 yds. Ht. of camp in tops fine millettia tree, many - Kristi counted 14 &
max. - feeding. "Gp. A" gone, but 3 in P. big-leaved tree 50 yds. N. of site.
At 1805, barkers heard, + gp. 9 Papio seen in large big leaved tree 100 yds.
ESE

Ht. of camp, within 50 yds. of where Colobus seen earlier.

2 October 1965. 0200, gurgling bands of Colobus from 2 or 3 sites in area bands A and C; apparently 2 howled from area of C. also Papio barks, which perhaps started the colobus. (Disturbance calls?). Similar to Alouatta, in night howling at disturbance. / 0700, bands C and A still in tree, tho I saw only C at former (3 latter). Long drizzling rain then.

The gurgling calls heard about 0630. These gone. still present 0900, as rain continued. / 1110, I saw one ad. on thick branch of tree on s. bank, 200 yds. downstream from opposite camp. Band C" (8 ads. + gray inf.).

Colobus abyssinicus2 October 1965Toro Game Preserve, Toro Uganda

in same tree as before (inf. to 1' from mother). Went to area 2 mi. S. of game lodge (about 1.5 mi. S. of bridge) & searched for monkeys where we can overlook treetops. Atop W. bank in tree, saw 3 ados. about 250 yds. S. of these, 3 in top green round-topped tree, & 2 ados. 200 yds. S. of these in dead topped tree & another 200± yds. farther S. These about now; hot, hot, very. Using binoculars & telescope to survey tops trees from top of E. bank, where can see $\frac{1}{2}$ mile or + of forest along stream. Back at camp, tree where band C was must had sample alt. leaves. 3" long, digitate veins . Walked in these woods $\frac{1}{4}$ mile E. & back, but visibility short so walking on elephant paths easy. The clump tree across R. from Wana Camp still had gp. 1650, mid. juv.; this clump about 75 yds. wide, then animal would have to go thru grass. gp. Probably closest to bridge to S. Area of "B" prob. closest gp. N. of bridge (1 sec. tree cve), the two about $\frac{3}{4}$ mile apart. Rain.

3 October 1965. Alto-cumulonimbus clouds. Monkeys at tree C, A', and nr. B. Counted up to 10 (+ inf.) at C; by 0800 there had moved 100 yds. E. in trees. A band of 20+ Papio spent night within 200± yds. of the C. a. in tree. Both ^{spp.} called ¹ at night. At 10 a.m., from near lodge saw 1 or 2 in another only. Calm, muggy, $\frac{8}{10}$ overcast. At 1155, 2 or 3 still in tree B, only about 5 yds. down. Returned to near lodge 1700 & surveyed forest. Saw gress. of 4 (juv.), 4 (juv.), 4 (juv.) 1, & heard one other. Closest gress. about 250 yds. apart. Thick foliage most trees so counts difficult.

4 October 1965. Cumulus overcast. About 0700, 5 or + in tree 100 yds. NE. of tree C, top of high rounded tree. 3 or + near tree B. At 0900, surveyed $\frac{1}{4}$ mile S. of game lodge. Saw gress. of 4 (2 juv.) and similar

Colobus abyssinicus

4 October 1965

Toro Game Preserve, Toro Uganda

gp. 300 yds. S.; other gps. of 2 and 3 at. Moved farther S. to watch. Saw in dead tree gp. of ♂ (juv.-1) + inf. (prob. complete gp.), sitting, lying, grooming; at least 1 ad. ♂, prob. 2. Heard the rattling call + then another one from 1/4 mile distant; then both - could be territorial warning, the monkeys show no excitement at it. | Bunch of Papio to 150 yds. from, in tree, + occas. barks. | The ♂ bunched in 20' diam. in same tree. a rettail (C. mit.) within 50 yds. | 1025, another gp., 1/2 mi. S. lodge, 7 or +, feeding in their foliage in center river forest band. Muggy, warm; alto cu strat. clouds, but no rain morning. | 1500, returned to area S. of lodge + searched river.

5 October 1965. 7 a.m., ♂+ in tree A, 200 yds. SSE of camp, incl. 2 juv. + 1 inf. (seen them last eve too). And in top of big round-topped tree

at B (500 yds. S. camp), 5, only the tails showing, all in an even line as if on one limb (1 juv.). Last eve also 2 or + in tree tops C. side tree for monkeys. Saw gps. of: 4 (^{1 ad+} juv.-1), 5, 9 (2 juv.), 8 (3 juv. + inf.), 9 - the 9+8 about 200' apart, possibly same gps., about 1/2 mile S. of lodge. The 9+5 about 300 yds. apart. Good visibility after showers. Black + white hornbills often on tree tops + at first taken for monkeys. Fish eagle flew slowly over stream.

5 October 1965. | Overcast + threatening, but only a few drops.

0900, area S. of lodge surveying tree tops N to S. About. 2 mi. S. lodge, to W., 5 (2-3 juvs. played, wrestled, dangled from limb, wrestling, until dropped into foliage), 5 + juv 1, 3, 6, 3, ⁴ β, 7 - all there in about. 4 mi. distance along river. Moved to .5 S. of lodge, where gps. 9+ 8 last eve; more in same trees, but 100 yds. N. in dead tree counted 11, apparently no inf. + perhaps no small juvs. A gp. of 4 at 500+

Colobus abyssinicus5 October 1965.Toro Game Reserve, Toro, Uganda.

yds. farther S. (Forest then thinned to S). Warm, calm $\frac{2}{10}$ overcast.
 as sky brightens, monkeys descend into foliage, mostly out of sight.
 (Ad. + juv. C. aethiopicus, top one foliozed 80±' tree, visible ^{on} top of
 rounded crown, tho no other sps. seen in tree.). / about $\frac{1}{2}$ mile S. of
 Waa Camp, walked to E. side river, where trees somewhat sparse, &
 saw 6 (incl. 1 inf., 1 juv.) in small tree; not always tallest, widest,
 or tree, & rarely most foliozed. / Then directly opposite Waa
 camp, saw none in usual small clumps (leave?). / 1120, m.
 camp, 2 played by tree B. and 2 there 1500 (1 juv.). [Photos tree
 A, B, C'.] Only $\frac{5}{10}$ overcast; wind 5 bts. / 1700, ^{saw 9} ~~about~~ ascended
 60' non-foliozed tree at edge grass 100yds. S. of our camp &
 fed (leaves smooth, Ø, about 4×1 ", simple & alt.) (some small
 flowers $\frac{2}{10}$ too). incl. 2 juv. + yos. + juvs. (2 about 1 yr.) and
 subad. ♂, no wif. I approached slowly afoot, & 1-2 atx
 they descended & jumped or dropped down into bushes, 2 juvs.
 first, an adult last. One big ♂ came to close branch & fac-
 ed me as if in threat. All gone when I about 60 yds. dist. /
 None seen in tree B, but at 1540 about 9 (+ gray inf.) in
 top of tree C, when foliage sparse. // Heard none at night from
 camp.

6 October 1965. 0700, 2 at in tree B, seen in tree A'
 (mod heavy foliage; simple large dull leaves - the most
 consistently used roost tree, tho small), and 9 in top
 of C - seen still there at 1000, & I collected sample lvs.
 + fruit. (Round green fruits 5 mm diam; leaf veins  rather
 digitate; pale bark somewhat sulky, buttressed trunk, no epudate.) Many

*Cercocebus abyssinicus*6 October 1965Toro Game Preserve, Toro, Uganda

droppings (balls) under tree, which used both for root & feeding. Prob. eat fruit or tiny flowers. Tree only 40' tall, or less. I stopped at upper game camp, about mile 5, & was told same in along adjacent Wesa R. valley, tho aspect rather dry than near game lodge. I saw one also; good view of crowns from above. I Bock in Kibale Forest, large gp. in tree A, where not seen for long. Counted 9 (3 juvs. 2-3 yrs., 3 ad. ♂♂, 3 ad. ♀♀, ^{+ one br. w.} no inf.). Biggest ♂ had slanting scar over L eye, medial ⚡. Then ate the Celtis leaves. One gr. ♀ w. inf. Jaw. gr. adult, + reverse. Inf. ate some leaves or held to mouth (mucous grayish, ^{brown} not elongated.) About 1730, mi. 0.4 W., 7 incl. ♂ and gray inf. (prob. some gr.). or seen late Sept.), but 50 yds. N. a gp. of 4 large odds. (3 or all ♂♂). From K-6 on road, saw 7 (incl. 2 small juvs.) 200 yds. S. (poor view). 1840, tree A, only the scar-brown ♂, but several more in tree A"; 100 yds. to SE, where foliage sparse. About 1800, 1.55 W., 2 ad. ♂♂ dashed thru trees, 40' up, S. to N., 5-10 yds. apart; not of a group? Mr. 1.95 E., could find none. But barked at mi. 1.5 E., I saw the ^(?) stump-tailed adult ♂ alone in near bare tree (possibly others near). At 1.4 E, 5 (incl. a juv.-1), & at 1.4 W., 7 (2 juvs.). Usual gps.?

7 October 1965. From Pridham's house, 0800, ^{4 at} 3 in tree A" where seen last evening; same at 1130. 0800, 3 in near bare tree nr. Pridham's NE corner (tea). Mr. J.A. Lemon told Pridham that C.a. was eating his eucalyptus trees.

Colobus abyssinicus

7 October 1965

Kibale Forest, Toro, Uganda

1555, tree A m. Pridham's road, 9 (+ inf.), largest ♂ with scar over l. eye. He came to close side tree + faced us as if threatening. One gave tiny bobs of head; jerks; like rhesus threat but much less moist. Some eating Celtis leaves. / 1625, N. of highway, 200 yds. E. of sawmill, 5 CA ado. in one Märkhamia tree, apparently eating leaves or buds. / 1700, 0.6 mi. on sawmill road, W. side, gp. of 10^{\pm} , w. 1 or + juv., 1 or + inf., 1 or + ad. ♂ (usual. + gp.?). Light rain; drove S. / 1.35 E., 4 ad + juv. 1 (or int.), appear same gp. as seen before here. 1.35 W., a gp of 8^{\pm} near tree where 5^{\pm} C. hindei, + one ad. to same tree. Showers. (the 1.4 W. gp. of 7?). / 1.75 W., single ad. ♂ in tree. / 1.95 W., kink-tail ♂ + 3 other ado. (another present?), eating Celtis leaves, vividly. First time seen on W. side road here! No more to K-8 sign, so returned N. In same tree w. 4 at 1.35 E., about 3 redtails. 1.35 W., one or more in big Balanite, where C. hindei seen shot + ogo.

8 October 1965. 1700, 3/10 calmless, calm. Along Pridham's road, in tree A", 2 or + juvs. in goos., probably the 9 (scar + eye ♂). None seen to K-6 + back 5. 1745, 1.35 E., 3 (or 4) ado. + juv. (usual here). 1.45 E, 9 + 2 white inf. and 1 black big inf.; 3 ♂♂ including "stamp tail" - he came closest to us, as if in threat.

9th not
seen for
long +

One white inf. all white hair, silvery + wavy, + pink skin showing at throat; prob. born recently. One redtail same tree as one, + a C. hindei to 6' from one. / 1815, 1.55 W., 7 or + incl. 2 or + juvs., 2 or + ad. ♂ ♂. The ♂ ♂ hurried off to 5, leaving 3 ad. in first Celtis tree, while others incl. juvs. to N. (prob. the 1.4 W. gp. of $\frac{7}{7}$ $\frac{7}{7}$); a wary bunch). / 1850, still gp. in tree "A" + vicinity, Pridham's Rd.

Colobus abyssinicus

9

8 October 1965.Kibale Forest, Toro, Uganda

About 10 a.m. I walked from house to 1.5 km road & trade. Gps. of ♀+ in tree A and adjacent. As I passed at 150 yds., ad. ♂ came 50' toward me in tree & sat crouched facing me, head low - possibly unerected penis is displayed in this posit. Later some sat in rain in open on high branches. When kids ascended tree house to watch, gp. retreated to adj. tree on far (SE) side of A. 1.1 E., I saw ♀ + ad., probably the 1.2 gps. of 7. 1.35 E., 3 (or 4) ad. + juv. 1 (or ad. inf.); prob. usual ♀. And at 1.25 W., 3 or + ad. (= ?). In gp A area, Rolf counted 7 ad., 2 juvs., 1 big infant (= 10). About 2 hrs. after ascended tree (0930), some adults returned to tree A and fed; 5 ad. in A while juvs. + inf. played in first tree, but finally came to A. Rain midday + afternoon.

10 October 1965. Vicinity Dura River in Kibale Forest, on road S. of Kijarama to Bigodi. About 2.5 miles forest along road; about 90'; no recent cutting, poisoning, + can walk about in forest fairly well. Dark, trees close, & few dead compared to Rogers sawmill area. Saw no Colobus in 2 hours driving up + down road, + walking, midday (redtail present; heard chirps). In forest patch .3 to 1.4 mi. S. of Kanyawara ranger house, at least 2 bands of 7+ along road. Wary; flee fast at approx. to 50 yds. of tree. In one gp, 7 in succession followed same route ^{at} fairly regular intervals of $\frac{1}{4}$ to $\frac{1}{2}$ min. Jumped 12' gap, crossing about 100' above roadbed, landing in resilient mad-folaged branch. No cutting or poisoning here; the understory ^{wastly} woody + passable.

11 October 1965. Rolf + Kresti watched gp. of ♀ from tree house; in tree A + vicinity. Saw ♀+ infant ♂. A large juv. ♂ play-wrestled w. biggest ♂. One ♀ appeared to be pregnant. Still in these trees at 12 M. / 1030, 1.13 E., 2 or + ad.; feeding to Colobus; pull twigs to mouth. 10⁵ 5,

Colobus abyssinicus11 October 1965

Kibale Forest, Uganda

Celtis
 1.7 w., 5 ad. + big juv., resting in trees, 3 in close brush. / Roff +
 Kieffer reported; at first monkeys hidden, but soon came into sparse-brush
Celtis tree A), where fed, jumped about. Soon went E. 100' into tree B
 (near by jumps). In that tree 2 ♂♂, one smaller than other; scar
 & eye ♂, the largest & apparent dominant one, ~~came later; stayed first tree~~
 he arrived tree B, another ad. ♂ to him & groomed. Once adult ♀
 chased subad. ♂ out on branch. "Scar ♂" rested, lying on branch;
 juv. ♂ (smallest juv. - about 1-2 yr.) to him, pulled at his
 ears & head, & soon ad. ♂ up, & both in play fight, snarling
 w. bared teeth, clutching shoulders. An ad ♀ (pregnant?)
 to top tree B, where 3-4 others crowded around her, prob. to groom.
 ♀ ^{with} & juv. to tree B' (S. of B), & soon others came over, but scar ♂
 stayed high in tree B (control or leader ♂?). When ♂ juv. to tree B'
 to an adult ♂, & was groomed. Later, leaving tree B' for B, ♀ (ag.?)
 first, then ♀ followed closely by juv. ♀, then others, until only
 an ad. ♂ & a juv. in tree B'. The mother w. ♀ infant stayed fairly
 long. End of obs. Overcast but bright; calm.

12 October 1965. Last eve after rain, seen in tree A ^{morning} on Prichard Rd.;
 this morning 10+ in this tree. Girls saw 10 ♂♂, 3 ♂♂ + juvs., to ♂. of
 .1 on Prich. Rd.; probably the 13th. They also 2 ad. ♂♂ near 1.1 E.
 and at 1.5 E., "stump tailed" ♂ alone in tree. / Rain midday. 1530,
 stratus, occas. sprinkle. I walked S. on road. Tree A m. Pr. Rd., seen
 in tree A (Celtis), doubtless the scar brow ♂ goes. At 1.55 E., I saw
 "stump tail" ♂ ^{same 1/2 hr. later} alone on 30' high dead branch; resting. To 2.1 + broke N., &
 at 1.6 W. saw 9 or 10 (^{incl.} 2 juvs.), rather wary gp. (the 1.4 W. gp?). There in
Celtis, & started to flee when I stood 50 yds. from tree in open.

P.M.C. 1965
5000 ft. elev.

Colobus abyssinicus

12 October 1965.

Kibale Forest, Toro Uganda

Back at Bridham Rd. 0.15, 4 ads. about 200 yds. N, feeding in ² esp. trees (terminal Merkhamia lvs. ?); when ^{10±} seen in morning. In tree B, scrl, including "scar bow" ♂ - the usual ♀. One juv. (1 yr?) had 2 cm. white spot on chest (sternum). A subad. ♂ wrestled w. a juv. (2 yrs.?), grabbing shoulders, mouths open. Ad. ♀ to the subad. ♂ soon, & ♂ gr. ♀. This at 1810, before sunset. Appar. pregn. ♀ gr. other ♀ ad. 1818, gurgling calls to E. of road near 0.10 E.

13 October 1965. Several calls heard early, about 0645. Later Rolf walked to ^{area} road 1.65 W, & saw gp. of ♀ (same or last one?).

Two ad. ♂♂ near, & ♂ and another ad. of gp. shared the 2 off. ^{6000±}

18 October 1965. Kapswata, N. side Mt. Elgon, Uganda
(on site River) a forested slope of 1000+ acres about 1 mile S. of rest house. Slope of N. aspect. In evening heard calls from at least 2 places here. Climbed to "fir town" in upper part of softwood plantations - a 100' rock w. shelter atop. Good lookout spot for treetop monkeys. About 1730 saw 1, & eventually 4 ads. including one w. $\frac{1}{2}$ tail missing, in broadleaf trees against the E. face of the rock. White hair of back larger than at Ft. Portal; probably tail too - for I saw one man w. white tail tips on stick or fly whisk, and another one near Burnasifwa (17th.) If possession permitted, how prevent killing? Rain night.

19 October 1965. Heard one early. Later rain, rain.

In occasional lifts clouds surveyed forest slopes and saw gprs. of 7, 3, 4 at dist. about 1 mile, in tops green tree (one dead), all ^{gprs}, 200+ yds. apart,

Colobus abyssinicus

19 October 1965. Kapskata, NE^{side} Mt. Elgon, Uganda
 about 300 to 600' above level Siti River, about $\frac{1}{2}$ mile
 in from forest edge. But I saw one adult feeding
 atop tree 70 yds. from road, $\frac{1}{4}$ mile NW of rest house,
 within $\frac{1}{4}$ mile edge ^{natural} ~~village~~. Some litops rain noon,
 but clouds descended again. Rain at night

20 October 1965. Rain ^{nearly}, all day. About 4 p.m., after rain stopped,
 went to top of fire tower (150' rock overlooking forest). At base of the
 rock, saw 4 (1 juv.), incl. "stump tail." Two climbed several
 yards up rough rock cliff face. They ate leaves of compound
 lvs. tree w. tips leaves red, new, small (). Trees about 80',
 about $\frac{1}{2}$ height of cliffs. Two ads. in 80' green tree at ^{sharp} edge
 forest to W. of tower. And below + s w of tower, where 1 $\frac{1}{2}$ ' diam.
 cypress tree at forest edge, 2 juvs. + 2 ads., 2 or 3 being on
 dead old fallen logs in the herbaceous tangle, 50' from forest
 edge (not just a forest crown beast). In alarm, these climbed up
 into cypress tree. Visibility good, but I discovered more in
 binocular sweeps of about 2 sq. mi. of forest to S + W. More atop
 trees in morning? No rain evening.

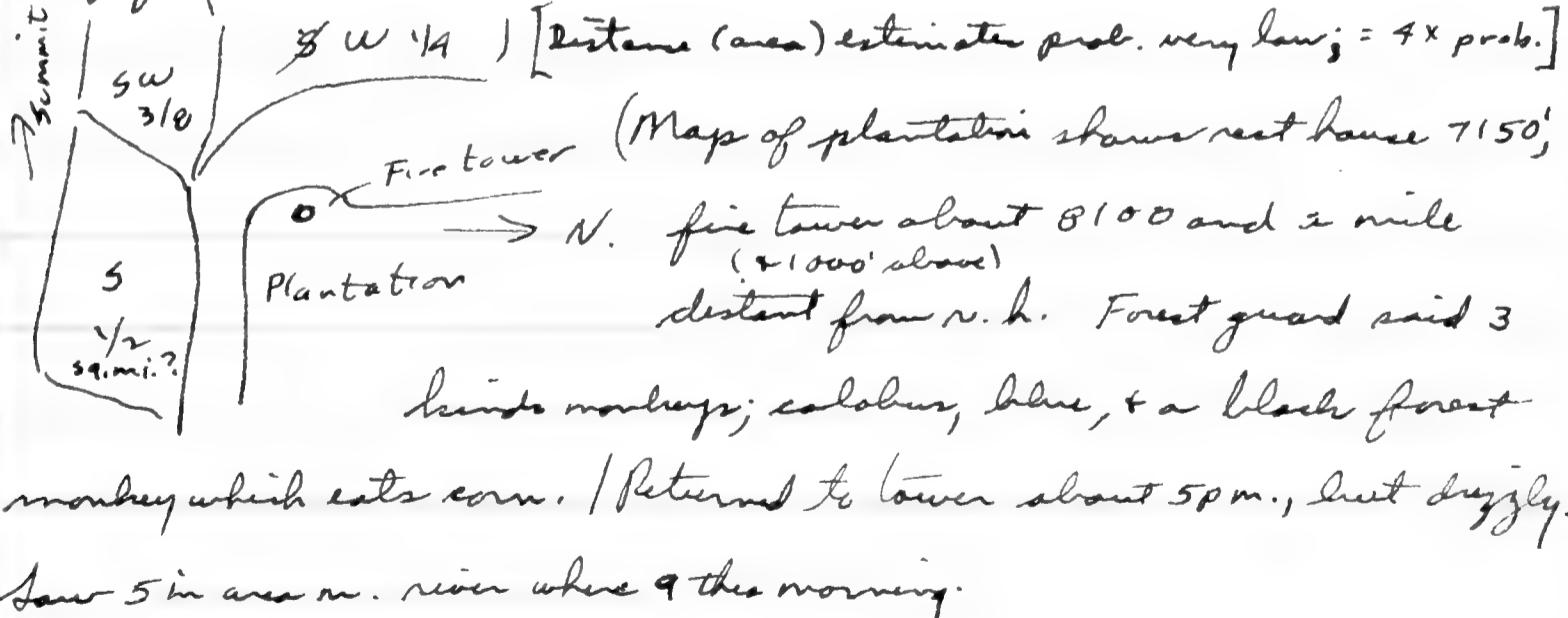
- (3 to 5 at near edge forest).

20 October 1965. No rain night, but overcast, morning. Heard calls
 to S. of rest house. On slopes to S. I saw 3 (1 juv.). Walked to top of fire
 tower (arrived 0930); cloud bottom 100' above. To SSE at edge
 forest (edge plantation), 6 (2 juvs.), 3 being in low tangled vgs. about
 10' high, 20 yds. from forest edge, + 2 ads. in tree at edge. (3 seen
 same area last evening.) I swept forested slopes with telescope.
 Saw 9 in gp. on near side road, near Siti River; many recounts nec-
 essary before seeing full number. Also, to SSW, nr. side river, 1 adult

*Colobus abyssinicus*20 October 1965Kapwata, NE Mt. Elgon, Uganda

7000'

atop tree in forest. In semi-shrub of N. aspect, ^{solid} forested slope to S., saw grps. of 1, 3, 3, 1, 1. / 1050, swept slopes to W. ~~tree~~ + saw gp. 100' below crest to cNW, ♂ in crown one mod. tree. 200+ yds. down slope, 1 (wsu). / Brightest about noon; ceiling 500+ ft. above tower. The close gp. to S. had 4 ad., juv 1, juv 2, and white infant. Father all white, climbed on shoulder "mother." The juvs. wrestled playfully, 50' below others. Two ads. groomed, using teeth + fingers. About 300 yds. up-slope from these, also at ^{near} forest edge, 4 or 5 (where seen last eve) by cypresses, 2 ads. on dead snag on ground (photo). / Looking down over edge rock, saw 2 ads. including "stump tail." He ate the red terminal leaves (small) of comp. lsd. tree. About a dozen trees along base of this cliff, + monkeys can go from one crown to another, apparently, + occasionally onto rock face. Initiated calls being quick looks toward us (ups). Sprinkler; left about 1330. /



21 October 1965. Overcast 7-9/10 morning. I walked to town; arr.

1400. Walked forest trail 1 hr. but saw none. Atop ^{Tower} 3 p.m.

Ocas. light showers. About 100 yds. SW of where I yesterday morn, 300 yds. NW of near side road on Kiti River, ♂ in top bushy tree. In area betw. river + plantation, to S. tower, saw 2 singles, + heard

Colobus abyssinicus

21 October 1965. Kapkwata, NE Mt. Elgon, 7000', Sebei, Uganda
By 1630
C. mitis. I made long overlapping telescope sweeps across slopes
 1-2 miles away to S, SW, W, + saw only 2 and 1, then in lower 1/4 of
 slope to S. Oscar. sunshine thru clouds. / 1650, 100 yds. S W. of
 tower at edge forest, 1 ad. ♂ 30' up on open branch. White hair hangs
 well below level of body when sits. In jump, white hair extends - in
 "parachute effect". I heard ^{gurgling} calls, approx. 2 at least 200 yds. apart, in
 area to S. or near side river. Kibale Forest, Toro, Uganda.

27 October 1965. Road walking census starting 1500 from Prid-
 hams. P.R. 0.1 N., $\frac{1}{2}$ (3 ad. ♂, 1 juv. 1) in Olea, most in bare tops.
 One of "snag tooth" in. seen over eye. The 13 formerly in tree A[†]
 apparently, + not seen for in October. / Near foot Prid. Rd., 500+
 (mid. inf., juv. 2) - part of gp. in tree A early Oct. ? / Sunmill
 road 0.7 N, 900 50+ and 3 ads., 150 yds. apart, in sparse
 leaved trees, 30-50' up. / 1.4 w., 70+ (latter ad ♂,
 juv. - 3); the usual 1.4 gp. of 8? 1.4 E, 5 ad. + white inf.
 (ad. ♂ ~); usual 5 prob. on same tree. / 1.7 ^{w.} ~~E.~~, 2 or 3 ads.
 + 1 C. badius. Heard gurgle calls on. 2.0. / 2.1 E., 50+
 (mid. juv. 1) in thick Celtis (?) tree 100 yds. from road (big
 gp. seen here at least once before). / 1.53 E., 2 ad. ♂ + 5 yds.
 apart in tree; 1 = "stamp tail" (crown ~), other crown ~. These
 2 80 yds. from ad. ♂ of gp. of 5 at 1.5 E. Latter gp. in juv. 1
 + white infant. 1.4 w., 8 (2 juv. 3), 6 being in single bushy
 tree within 30' distance, + 2 about 50 yds. distant. 1.2 w.,
 1740, 4 ads. (mid. ♀), + 50 yds. N. ad. w. black inf. 1.1 w.,
 7 (mid. black inf.), one 50 yds. from others. / Pridham Road,
 1745, 0.1 N., 11 (2 ad. ♂, 1 juv. - 1). Eat ^{distal} leaves Celtis.

*Colobus abyssinicus*27 October 1965.Kibale Forest, Toro, Uganda

None in trees A, B, C. Rain hard at night.

28 October 1965. Several calls from different directions heard from Pridham house at 0630, when colors crowing & barely light enough to read outside. Same other mornings, more than at any other time of day. Sound or start rain does not start calls (as in howlers).

1555, Prid. Rd. 0.12 N. in Olea, 6 + including "snagtooth" ♂.

Highest in tree a subad. ♂ w. anterior crown silhouette ▷.

1610, Barnhill Road 0.5 E., 4 ad + 2 juvs (^{est.} 1 to 2 yrs.) in taller trees, sparse foliage, on w. tiny new leaves (Celtis?). Dull.

3 large ♂♂, which fed in fine leaved tops after others descended. Saw driving (5 mph) 5 on road; saw none until 1.5 E, where "stamptail" ♂ alone. 2.05 E., 2 ads. in Celtis, but not see "kink tail." Overcast, but drier & less threatening than yesterday; light breeze - and fewer monkeys seen! about 1730, 4 ad + in Celtis on Prid. Rd. 1.5 N. (snagtooth yrs.?).

Then in forest $\frac{1}{4}$ mile E. of Pridham house, 6 (1 juv. 2) rapidly eating foliage (tree 300+ yds from tree "A"). Heavy rain night.

⁰⁸¹⁵
29 October 1965. Low strokes. Sp. of qt near start of Chimp Path, to N. P.R. 0.1 N., one adult (snagtooth yrs. not seen). Walked

S. 0830, 1.27 W., one ad. in top dead big Balanite. Calm, overcast; many flies; few monkeys out. saw ^{more} ~~some~~ big 1.7, + walked back N. / 0955, gp. still near N corner of tea estate, but counted only 8 (3 juvs., 1 to 3 yrs.) in one spindly Olea tops, 80' tall. Mod. foliage. Bartender ♂ highest (only ad. ♂?). One juv. = ♂. Occas. one pick or chew picked leaf, but little feed.

Juvs. espec. active; move about; grab, wrestle, mouth each

*Colobus abyssinicus*29 October 1965Kibale Forest, Toro, Uganda

other. Ad. gr. adult. ad. gr. juv. One white inf., closely held but sometimes sat 1 ft. from ad. Pink face, black ears. 1023, 2 juvs. descended tree; rest stayed. 1033 still inactive. One alarm of adult + 2 large juvs. + Perhaps one soloed. Only 4 definite adults. No others approached or handled white inf. by 1040. Brightening but ascent! 1650, to area Pridham's N. corner. Near start Chimps Path, 5+ juvs.-1 in new foliage Celtis (?) at edge forest, 20-30' up. 100 yds. NE of there, 7 or + at forest edge, 12-30' up. A third group, 8 or + (incl. 2 juvs). One ad. in tree betw. 2 gp., possibly ^{second} or having chased ~~second~~ gp. to NE. Walked S. on road. 1720, 1.3 W., 5 or + 50' up in mid. foliage (the ♂ formerly at 1.4 W?) 1.3 W., 1 adult, eating Morinda leaves. 1.7 W, 4 in a m. dead tree. ♂, flesh penis erect, rushed to high branch as if in threat → me; 1 C. ladrus within 50' of gp. Alarm of gp. at about 100 yds. usually. No more seen by 2.1 on road; sunshine still (1750). Back at 1.7 W, ad. ♂ \square . 1840, $\frac{1}{4}$ mi. E. Prid. House, 2 in thin top tall tree (Celtis?) and also black + white hornbill perched within^{50'}.

30 October 1965, Rain 9 to 3 pm. 1600, alto stratus. Chimps Corner, $\frac{1}{4}$ or + (incl. [♂] juv. 3), 40' up, w. redtail 20' below in same tree. ad. $\frac{1}{2}$ yds. NE of there, 3 ad. + juv. 1 in Morinda. Ad. ♂ with tail tips $\overset{?}{\text{S}}$, visible thru thin white hair & sp. apparently: ♂, 3 ad. ♀, juv. 3, juv. 1, = ♂. Flesh penis of ♂ protruded; largely? as I to 50 yds. from tree, they hurried thru tree tops to denser trees. Saw second ♂, carried black inf.; possibly the 2 gos had joined, or gp. = 8 (2 ♂, 3 ♀, juv. 3, juv. 1, inf.). The ad ♂ S-tail close to ♀; then would last to NW., she 10 sec. after him + again sat close (6'). In crown 80' tree, there 2

Colobus abyssinicus

30 October 1965.

Kibale Forest, Toro, Uganda.

stayed while I walked beneath or hid. They must often see the pedicel wood gather here. | P.R. 0.2 N. 100 yds., 11 ad. in one Mitchania, feeding; no flowers. ad. ♂, ad. ♀, juv. 2, juv. 3, juv. 3, + others. Eat orange-brown distal leaves. 7 in 10 yd. diam. Mod. thin foliage. (Later saw 2 tunous feeding tops this tree). | 1.15 W., 5 ad. (1 ♂) + juv. 1 in 50' Celtis; ate leaves; mod. foliaged. Juv. ran to chest of ad. / 1.2 W., dead Balanite area, 6 ad. + mid. juv. 2 (the 1.4 W gr. of 8?). t. 31. 9 W., grunting la-sol calls of 1. No more seen by 2.1; walked back to N. 1.810, calls from 1.15 W. area where 6 ads., 3 being in top single Mitchania. The PR 0.2 N gr. 50 yds. N. form spot, in thick foliaged Celtis.

1 November 1965. Fog; then alto strokes; rain 1100. Slow dive S. from 0.1 at 1530, but walking S. fr. 1.3, yet saw none until 2.1 E.

+ here 6 (mid. juv-2) in tiny-new-leaved Celtis tops, 30' tall; alarm + most flee at 20 yds. (1 big ad. stayed). None seen on way back to Pr. house. Few out!

2 November 1965. Sawmill Rd. 0. 85 W., 8 (mid. juv 2, ad. ♂) near road at edge, ^{sprawling} gr. 40 ± C. brasiliensis. / In addition, 1120, 0.75 N., 4, (mid. bl. inf., juv. 3). Two more 150 yds. E. of den, so 3 gr. in view from one spot. also saw reddish, one blue, same time.

Yet another 0.9 E., atop only Ifless tree. / about 1215, the 2 m. 0.7 N climbed down into lower denser veg. + sat together on limb; another ad. came from W. + sat 20 yds. short of them, but no apparent alarms or threats. / 1250, 0.52 W., one ad. 25' up; ♂; thin new foliage, prob. Celtis. And 50 yds. S, 2 under canopy in 40' tree, & 8 prob. or ad. Much alarm when I walked near (or road, 100'). The 0.7 N gr. of 3? / 1620, 0.9 E. 300 yds., 2 ad. + juv. 2. 6/10 alto ca. + series. 0.75 N., 4 (some?)

Colobus abyssinicus

2 November 1965.

Kibale Forest, Toro, Uganda

0.85 W., 5 (same as earlier 6 prob.) at edge C. badius gp. / Walked S. + saw none until 1.75 W, where adult ate Markhamia flowers buds. Alarmed, it bounded up + toward me $20 \pm$ yds, to 40 yds, half + faced my penis showing. Then bounded 50' away into thicker foliage. / 1830, 4 ad. 2 juv (1+2) in new leaved tree edge forest + tea field, 100 yds SW of Chemis Corner. Tree 25' high; I saw gp. there a few days ago. Tree half height of adjacent (Olea?).

3 November 1965. About 0830, 0.6 E, 2 (one ♀) in treetops. One crooked, but not one closest to observers. / 0.5 W., 7 (juv 2+3) in Olea (?) tree. 2 C. badius within 50'. One in same Markhamia where C. badius a few min. before. 2 ate Markhamia while C. badius sat 10' distant. A juv - 2, near an adult, pointed paw toward a small C. badius which ran close (2') past. 4 fed at once in small Markhamia tree. / 0.2 3 E. (= K-6 sign), 8 + juv. 1 resting in tree, where seen early Sept. Redtail in same tree as 2. Most trees, or all, Markhamia + Celtis. Still here 1025. Drove S. / 1030, 2.02 E., 800+840 incl. juv 1, juv 2-3, 2 ad. odds., in mod foliaged Celtis. 2 redtails within 100'. The 2.1 E. gp.? / 1109 turned to N, driving. 1.75 W., 5 or + scrambled in alarm, at least 2 redtails + 2 blues scrambling with them. / About 1720, 1.28 W., 6 (1 juv-2) 2.05 E., red-gp. seen earlier prob. 1.27 W., 6 again. / 1805, none along Pricham's NW border. /

4 November 1965. Foggy; then sunshine. 0.5 W., 9 (incl. juv. 3, juv 2, bl. inf.), at least 2 ad. odds. Or faced us as if threatening, head somewhat lowered, forelegs far apart; moves quick, not languid - threat prob. / 1.9 W., "kink tail" gp. of 5 (2 ad, 3 juv), one w. white inf. (+ part check), pink chin, black ears). Seated at 50 yds. sep.; ~ crown; sat plainly

*Colobus abyssinicus*4 November 1965Kibale Forest, Toro Uganda.

80' up (photoed) tho we stood 10 yds. from tree & even threw stones toward him. Fur. inf. jumped ^{w/o} inconvenience. Rather tame group; all remained within 50 yds. after on road in open. / Drove to S. but saw no more. 1737, P.R. 0.15 N., 200 yds., 2 ados. in Markhamia (where seen a few days ago). None seen in walk to 2.1 and back, until 3 ad seen 1.27 W. at 100+ yds.

Kibale Forest, Hima Block

5 November 1965. Mr. Rutherford showed me Eucalyptus saligna (sp?.) grove 3 1/2 yrs old, trees 8' apart, adjacent to edge forest (Hima block, N. of Ft.P.-Kamusala rd.), where colobus said to strip bark & kill trees. Trees 5-6" diam, ^{25'-35'} tall. Damaged for 7 rows back from edge. Dry branches all broken from boles. Basal bark has tooth ^{gouges}, + some shot strips bark torn off. More torn off in short (scilicet) sections all upstream and top 5' dead & barkless. R. said these largest trees attacked. In other area trees badly damaged were cut, + then sprouted from stumps. Big forest trees to 70' nearly touching eucalypts at edge. We saw 2 C. abyss. nearby, thonot in eucalypt. Two trees raised ^{as} firewood for tea factory. along road to highway saw one juv. ³ which stayed 50', while we in car. (R. said access. changes this forest.) ^{dist. (in tree)} ^{Kagera Saw mill Rd.}

1700, Chimp Common, 6 (^{2 juv. 3; + white inf.}) ; 2 C. bodei up to 50'; + a blue also near. P.R. 0.15 N., 100 yds., 7 adt (incl. ♂, ♀, juv. 2 or 3 yrs), ate comp. leaf (Fagara?), but later to Markhamia, Celtis area. (Broken cu-stature after midday rain.) / 1.2W., 6 in Celtis + Alea (incl. juv. 1). Walking S. ^{1.25W.} Tott, wary; started to flee at 150 yds.; 1 adt closest to road by 50 yds. / 1.35W., 2 ados., ♂ + ♀. Took alarm at 100 yds., then stayed as I walked by at 50 yds. ^{1.95W., "kina tail" in sp. 5; croaking.} Walked to 2.15 (0.10), + 5 open. (835, 1.38W., 2 ados. about as before).

Colobus abyssinicus

5 November 1965.

K. Bale Forest, Tororo Uganda

About 1700, 1.95W; "kink tail" gp., of 2 ♂, 3 ♀, white inf.; 100 yds. from road. About 1800, 1.4W. 100 yds., 2 ad. (1 blue near).

6 November 1965. Saw several gpos, up to 6 (1 juv.), in 2 hrs. walk

along forest road in Naima Block, N. of Ft. P.-Kampala highway. One subad. allowed photos at 40', 45° up from me. Forest few dead trees &

logging, more closed, than in Bledow ^{K K} (64, 7). / About 1700, 1.23W., 6

(incl. 1 juv. -1) ¹⁰⁰ (still thin, but later.) + 20 yds. from road in Celtis. 3 redtails in vicinity. /

1.93W. 100 yds.; "kink tail" ♂ gp. of 5 (+ white inf.). One ate Markhamia (20 min.)

flowers; one ate 5-10 mm. long leaves Celtis. Later ate fine lvs. Celtis

/ 1.0E. 50 yds., 5 ♂ (1 juv.) + white inf., in spindly Celtis w. most upper parts dead. Think whole gp. at slight disturbance & leave ascend, so

all in 5 yd. diam. 2 ♀ sat 2' from ad. ♂. Inf. has pink face, pinkish forelegs, dorsal hair stiff, anterior crown. Eat tiny new leaves Celtis. / Across road nearby, 0.95W., 50' + (2 ^{and} juv. 3) in large Markhamia, eating rapidly. / By 1820, the 5 w. white inf. in tree 50 yds. from first, eating avidly at Markhamia foliage. 1842, at edge forest nr. Prisham N. corner tea, 100 yds. SW of Chimp Corner, 8 (2 juv. 3) in new broad

Celtis, where seen seen on at least 2 previous recent occasions. ^{eating, fast.} Co.

7 November 1965 0930, 0.9E 50 yds., (within 100 yds. of where 5+ white inf. seen last eve), gp. of 8 (+ half white inf.), eating in nearly

leafless tree. 2 redtails within 50' of members of group. At 1125, gp. in same (1) and 2 adjacent trees, in 100' diameter, quiet. Across road, .95W, 2 juv. 3, ad. ♂, ad. ♀, + others in 20' Trema near edge road. Juvs. not flee when I panted near 25 yds. distant. / .75" rain mid-day. Evening census, 93E 5 (1 juv. -1) + white inf. (200 yds. from where 8 this morning; same gp.?) .93W., 2 ad. (one ♂). 185E, 2 ad. 1725, 1.2W., 6 (1 juv. 1) in Celtis. 1.26

E., 2 ad. (1 redtail 50'). 1.95W., 2 ad. - prob "kink tail" gp. 1.69W., 1 ad. (2 juv. ^{there?})

Colobus abyssinicus

7 November 1965
(usual (c?))

Kibale Forest, Toro, Uganda

1.2 w., 5 (incl. 1 black inf.). These on census with Primate house to .9 to 2.15. /

Hugh Rawell said colobus in botanical garden, Entebbe.

13 November 1965.

Nr. Mabon (15± mi. S. Kitale), W. Kenya.

Visited Richard Leather, cattle rancher. KRL Hall had told me that colobus were in riverine forest ^{on} ~~near~~ Mabon river on Leather's ranch. Leather friendly Englishman; offered housing + other hospitality. He showed us site where Hall observed, about 2 miles from ^{Lanthris} house. Riverine forest 40-60'; mostly thorn trees, in semi-arid cattle country. Rolling country. Forest belt about 100 yds. wide. He said Hall saw about 4 bands, some of about 1+, & stayed in area about 5 days (should have counts in notes). We saw 1 to 4 in about 3 places. White hair long, as on Mt. Elgon, & apparently had parachuting function in "dropping" leaps. Leather thought never left river forest. Forest mod. foliage only, but generally more foliage than where we worked most in Kibale Forest. Much drier here, & tree species different. Some Podocarpus (?), willow, along river. Clear but moonless evening. At 2130, croaking calls from 2 or 3 parts forest.

14 November 1965. More calls in night, & about 0450, when half-moon up, much calling, & coughing grunts of (baboon?) from different areas, as if started by some disturbance (leopard?). C. mitis in same forest. About 0900, after wind came up, crossed river (to N.), walked 1½ mile W., crossed to S., & walked back to camp. In last ½ mile saw 2 groups, one of 10+ (incl. 3 or + juvs.), one of 8+ (incl. 1 or + juvs.) - saw no carried jufs., but animals alarmed at 100 yds. + view poor. Drapes of 15-20' straight down, more common than in Kibale gps. White fur very clean & tail tips conspicuous.

Nairobi, Kenya

21 November 1965. Leslie Brown said he once saw ~~an~~ Longnose crater, about 40 mi. from Nairobi, in fig trees near crater floor. I visited

Colobus abyssinicus28 November 1965

Nr. Nairobi, Kenya, Africa

wrote on Nov. 28. Saw patches tree to 40'; the mostly brush on floor & sides. Saw no monkeys. An infant born in cage at Tigoni private center (Cynthia Booth). The people there said female can take from mother & handle it (about 2 weeks old; face now black), but mother cannot because of hostility of mother.

End



Koford

(These supplement species accs. on)
C. abyssinicus & others.

Monkey Censuses
Walking (+ car)

C-1
13 Sept. - first

23 September 1965.

Kibale Forest, Toro, Uganda

Walked 1.1 to 2.1+ (K-8) + return, 0840 to 1030. Calm, overcast.
Saw 0850, 1.2E, 7 ad. C. alyps. 0900, E., 1 C. mit. 0905, 7 ad. & 1.4W.
0915, 1.5.5 W. 1 C. ab. 0940, turn N. 1005, 1.5.3W, 2 ad. 1025, 1.25E.,
5+ C. mit. 1.2 E, 7 ad. still. 1.1W, 1 C. mit.

24 Sept. Mi. 1.0, 1630. 5/10 cu - nimbus; wind 5 mph. Walked S. 1635,

C-3
1.2E, 6 ad. C. alyps. (1 gr. other). No more to 1.55W., where 1 blue ad.
then rain started. Early wind prevented hearing most. or seeing branch most.
After rain, clear air, 2/10 cu. + strat. clouds. Start 1.1 at 0550. 1.12,
1 redtail W. 1.2E, 4 ad. C. alyps. 1.25W, 1 ad. C. alyps. 1.3W,
1 redtail. 1.32W., 3 blues, 1 redt. (redt. 20' from blue in same
Markhamia tree). 1.42W, C. alyps., 6 ad + mid. 2 juvs, + 1 C. bodini
(rec 25 Sept. now seen too). (Red C. not 1 from C. alyps., back to
back.). 1.68W., one ad. C. liboesti. (all went upper. to 20
yds. Still there next a.m.). 1.68W, 2 ad. C. alyps., at least 1 ad.
1.95E., 5 C. alyps. ads ('835; next worn saw one bad break
in tail.. To K-8 again, 1045; too dark for further good obs.

25 Sept. 1965. 1/10 alto clouds; calm, clear, sunny. Started 0835
mi. 1.0, walking S. 0840, mi. 1.2E, 5^{out} ad. C. alyps. (as seen be-
fore). 0841, mi. 1.4W, 5 C. alyps. (1 out juv.). 1.45W, 5 C. ab.
with 1 ad. C. bodini. (at least 2 C. ab. juvs.; all of same
band?), 0858, mi. 1.68W, 1 C. liboesti ♂. 0903, 1.8W,
5 blues. 0915, 1.97E., 5 ad. C. alyps. (near where last seen;
include bimbed tail via ¹/₂, 1 ad. 0915, K-8, turn back. / Saw
again juv. 5 ad C. alyps. 1.96E. (heard other 1/2 mi. SE), 4 ad +
blues 1.8W., 1 C. liboesti at 1.68W. Lone ♂ ad. C. alyps.
at 1.64E, 7 (mid. 2 juvs) C. alyps + 1 C. bodini at 1.75E.
3 ad C. alyps. at 1.23E. 5 + 1 juv. C. alyps. at 1.1W (1040).

Kinktail gp

Monkey Censuses
~~walking~~

25 Sept. 1965 (cont.) Kibale Forest, Toro, Uganda
walking.

Pri. Rd. .13, 150 yds. N., 9+ inf., incl. 2 ad ♂, 2 ad + juv., 2 ad juvs.
 Start 1710, Prudham's road .05, 6' ads. (2♀, 1♂, + ?) + inf. to w.
 1712, .95 E, 7 ads. (2♀♀; the 1.2 E gp. prob.) in near bare Celtis
 1730, walked S. from 1.1. None at 1.2 except 1 redtail. 1.3 E, 2 redt.
 1.48 W, 1 C. ladrini, 1 redtail, 4 C. alyps. (1 juv.); the usual gp.
 of 7 probably. 1.57 W, 1 C. alyps. 1.55 E, call of 1 blue. 1.97 E,
 5 ad. C. alyps., incl. ♂ w. hink in tail. 2.1 E, 1 blue ad. 1835
 reached K-8. On way N. saw 7 or 8 C. alyps. (2♂ + ♀♀) at 1.47 W.
 1900, 1.15 E, 2 ad ♂ (± others?). Pri. Rd. 05 E, 1 redtail.

27 Sept. 1965. Start 1700, 1.0, in car but stops every .1 mile
 (or less if monkey seen). 1.0 W, ¹³~~10~~ C. alyps. (prob. = the 13 of band A.)
 1.1 E, 3 ads. (prob. the usual 7). 1.0 W, 1 redtail. 1.2 W, 1725, 2
 redt. (on thick dead limb). 1.75 E, 1 redt. 2 blue. 1.75 W, 4
 blue (one w. small black inf.). 1.95 E, 4 ad. C. alyps. (prob. the
 usual 5 ads.). 2.1 E, 4 ad. C. alyps. (probably more near). Back
 to 1.68, none found! - (no rain this afternoon; were active
 after rain?). Back to 1.37 E, 5 ('juv') C. alyps. 1.5 W, 1 blue.
 1.35 E, 1 C. ladrini (rarely alone?). 1.3 E, 1 redtail. 1.13 E,
 5 ads. / Car. 1735, Prudh. Rd. .1, 13 gp. 1.15 W, 7 C. ladrini
 (+ 2 inf.). 1.2 E, 4 ad. C. alyps. (prob. the 5 ads.). 1.2 W,
 7 C. alyps (4 ♀, 1 inf., + ?). 1.35 E, 4 ad. C. alyps. + 1 inf.
 1.42 W, 3 redt. 1.7 W, 2 ♂♂ C. alyps (+ one?). 1.95 E,
 5 ad. C. alyps. (incl. hink tails ♂). 2.2 E, 5 ad. C. alyps.
 + inf. ~~at 2.3 E~~ ^{O.K.} Back to 1.85 E, 5 (incl. juv. 1) + inf. C. alyps.
 1.63 W, 1 blue (1850).

see Col. ab. notes → 28 Sept.

29 Sept. 1965. Car; casual census, 1.1 and 5. 1645, 1.3 W.
 1 ad. C. alyps. ^{alone.} ~~in Monk~~ 1.25 W, 5 ad. (1 juv) + C. ladrini

C. Koford
1965

37

Monkey Censuses

29 September 1965. (Cont.) Kibale Forest, Tong Uganda
no census
Camer.
invent.
etc.
1.72 w., 3 blue + redtails. 1.95 E., usual 5 ads. To K-8
(2.2) + back to N. 1.7 E., 3 ad. C. alyps. 1.68 E., 6 ± blues +
3 or + redt. (commonly seen here). 1.25 E., 1 redtail. 1.2 E.,
7 ad. C. alyps. On N. to O. 4 w., 6 ad. + gray-backed w/
K-6 (0.3) none seen.

30 September 1965. 1650, 7 ad. C. alyps. 1.1 E. 1.15 w., 2 redt.
[O. 4 w., 7 ad. C. alyps (+ inf.) + 1 C. badius] 1.25 E., 2 C. badius. 1.3 W.,
10 ± CB (mil. juv. + inf.). 1.3 E.; 4 ad. (2 a + ♀) + inf. C. alyps.; 3 C. badius
sepx. (gp. seen 1.15 w. a day or 2 ago?). 1.35 w., 1 C. ab. ad. alone. 1.5 w.,
5 blues. 1.55 E., 3 or + blues (juv) + 3 or + C. mit. 1.6 E., redt. 1.6 w.,
redt. 1.6 E., juv. redtail. 1.65 w., 1 blue; 1 redt. 1.68 E., 1 blue.
1.8 E., juv. redt. 1.95 E., 5 ad. C. alyps. To K-8 + back. Walking
census. The 13 C. alyps. apparently still near 1.0 w. No rain; broken
clouds evening. (about 1800, = 0707, thru trees fairly fast, 40'
up, from S. to N.)

6 October 1965. Eve. Slave car travel w. stops. About 1700 to
1840. 0.3, 7 CA to E. 0.4, 7 CA (+ inf) to W., + 4 ad. CA.
Pr. Rd. .2 5., 9 (+ inf.) CA. 1.55 w., 6 blues + (mangabey).
1.56 w., 3 blues. 1.55 w., 6 redt. scattered; + 2 CA 0707.
1.68 w., 7 or + redt. (one juv.). 1.8 E., 2 blues / 1.5 E., one
ad. or CA (stumptail). 1.4 E, 5 (juv.). 1.4 w, 7 (2 juv.).
1.3 E, 2 redtails. No rain late p.m.

Some showers. To K-8 + return to 1.1.

7 October 1965. Kibale Forest, eve. 1555, Pr. Rd. .2, 9+inf.
C. ab. 1700, 0.6 w, 10 ± + inf. C. alyps. 1.35 w, 10 ± C. badius, 1.35 E.,
7 ad. + juv. 1 C. alyps. 1750, 1.55 w., 1 redt., 1 blue. 1.75 w., 1 ad. C. ab.
1.95 w., 4 ad. C. ab. 2.0 E., 1 redt. 2.1 E., 1 blue. 1.35 E., 3 ± redt.

c11

C. Koford
1965

4.3

Monkey Censuses

8 October 1965

Kibale Forest, Toro, Uganda

Car, eve. None K-6 or 0.4. ¹⁷²⁰₁₇₄₀ Prid. Rd. .2, tree A', gp. C. ab.,
prob. the ♀. 1745, 1.36W., 12± C. h. hodus. 1.36E, Ad. + juv. C. ab.
1.45E, 9 C. abys. (+ white rifs) + inf.; stumptail gp. also 1 C. hodus,
1 redt. 1815, 1.05W., 7 or + C. ab. + 3 ad blues. 2.1W., heard
blue. 1.85E, 2 blues. 1.85W., 4 redtails. End 1850. Full moon,
^{no showers}

10 October 1965. Kanyawara area, .3 to 1.4 mi. from ranger house,
^(far)

post rain, start S. end, walk N. 1706, 6 ad redtail, 2 blues. 1714, 7+ (prob.
10+) red colobus. ^(2 juv.) 1730, 1 C. abys. 1745, 3+4 C. abys. (juv.), 1 blue.

1750, arrived N. end, started S. 1803, 7 or + C. abys. (where saw before).

1820, red colobus gp. (same area as before). 1830, 8± C. abys; separate,
3 blues. Rain. Trees close, tall; foliage dense; usually see only 50
yds.

27 October 1965. Kibale Forest. 1500 - 1815, overcast + threatening.
C. ab.

Prid. Rd. 0.1N, 9 in ~~old~~ 11 (snagtooth gp.; = 13?). PR 0.5W,
C. ab. 5+ (incl. inf., juv. 2). [Savannah road 0.7N., 5 or + C. abys, +
3 150 yds. N (.65)]. Walked S. 1.4W., 7 or 8 C. ab. (incl. juv. 3).
C. ab.

1.49E, 5 ad. + white inf. (usual 5?). 1.68E, 7^{or+} redtail (no rifs.)
1.7W., heard blue (1610). 1.8E, 2 blue. 1.9W., 1 blue. 2.0W,
2 blue. Th. 2.1E. heard 1 blue. 2.05W., 1 redtail. 2.1E, 5 or +
C. ab. incl. juv. 1. 16+3, turned N. + walked to Pridhams. 2.05W,
1 redtail. (Noisy truck passed to N; alarmed many?) 1.53E, 2 ad or
C. ab., 1 = stumptail. 1.5E, 5^{ad} C. ab. (incl. juv. and white inf.)

1.4W., 8 C. ab. (2 juv. - 3. 1.25W., 1 red colobus. 1.2W,
1740, 4 ad. C. ab. (1 inf. or j-1). 1.1W., 7 C. ab. (1 inf.). (Up Prid. Rd.
1745.) PR 0.1N., 11 (juv. 1). NE corner tea, 1 blue. W. side
tea, 6 + C. hodus.

C 12

out
C 13

bottle
C 14



Monkey Censuses

28 October 1965

K. Bale Forest, Tororo, Uganda

Damwill Road, 0.3 to 2.1. C. h. badius, 10 ad. (2 juv., 2 juv.) on Chimp Path. C. ab., 2 to w. of 0.8. 6+ nr. P.R. 0.2 N. 0.5E, C. ab., 4 ad. + 2 juv. (1+2). . . 45 W., redtails, 2 alone. 1.5E, 1 ad alone, C. ab. 2.05E., C. ab., 2 ad. (2.1, 1615, turn to N; access. sunshine. Driving 5 mph w. stops every 1-2 mi.) P.R. 1.5N, 100 yds., 4 ad. None N wedge tea field. 1/4 mi. E. Prithi house, 6 (1 juv. 2), C. ab.

^{Morning.}
29 October 1965. Heavy rain last nite; status, calm. Walked to 1.7+ back. 3 C. ab. (3 juv., 1 juv.) Chimp Path. 1 C. ab. ad., PR. 0.2 N. 1 C. ab. 1.27W. 1 blue 1.6 W. Walking, w. Carla & Krooki. Why so few ad? ^{C. ab.}
Evening. 1650, sunshine. Prithi N. corner, gvs. 6 (incl. juv. 1), 7 ad+, 8 ad+ (incl. 2 juv.). 1710, Sunn Rd. 1.1W., 1 redt. 1.3W, 5 ad+ (0?) C. ab. 1.3W, 1 ad. C. ab. 1.7W, 4 C. ab. + 1 C. h. badius. 1750, 2.1, turn N - walking. 1.7W., ad. ad. 1840, 1/4 mi. E. Prithi house, 2 ad. C. ab.

^{Rain m'day.}

30 October 1965. Walking. 1600, Chimp Corner, at least 8 C. ab. (possibly 2 gvs.); 1 redtail. PR 0.2 N., 11 ad+ (3 juv.), 1630, C. ab. Walked S. on main road, 1.1 at 1640. 1.15W., 5 ad+ (juv. 1). 1.2W., 6 ad+ (juv. 2). (9/10 alto status.). 1.53W., 4 redt. 1.54E., 1 redt. 1.55W., 1 blue; 1 redt. 1.9W., calls 1 C. ab., 1 blue. 2.1W., 3 blues. Back N. 1810, 1.15W., 6 ad+ (juv. 1). ^{C. ab.} 1.2W., 1 ad. When earlier. Gp.; nr. PR 0.2 N.

1 November 1965. Sunday. Overcast; rain 11 a.m. 3-5:30 p.m., car + walking monkey census. (Many Merelhamia's now have long pods; few flowers now.) slow drive starting 0.1, going S. 1540, 1.2W., 2^b blue, 3 single redt. 1.3E., 4 blue. (access. sunshine). 1.33E., 1 redt.

Monkey Census

1 November 1965.

Kibale Forest, Tororo Uganda

Walked S. 1.6 W., blue coll. 1.7 W., 2 blues. 1.4 E, 3 redt. 2.1 E, 6 C. ab. (juv. 2). 1650, turned N. - no additional seen on way to house (1725 am.)

2 November 1965. Walk. Start 0.8 at 1620. 0.85 W., 6 ad C. badius.

0.9 E., 2 ad. 1 juv. C. abys. ($\frac{6}{10}$ alto str. + circus). 0.9 E., 2 blues 15' up. (Access. sunshine) 1730, 2 ad. C. ab. .85 W.,

5 C. ab. 0.77, $\frac{12}{10}$ ad + C. badius (part of spread grp. 40± apparently).

Walked S. 1.75 W., ad. or C. abys. alone. 2.0 W., 1 blue coll. 2.15 W.,

2 blues. 1730, turned back N. 2.05 E., 10+ redtails. 1.55 E., 1 redt.

1815, 0.8 W., 1 redt. (+ 3± crushed). 1830, P.R. 0.2 N., 1 redt. 6 C. abys (2 juvs) N. corner tea field.

3. 4 November 1965. Fog, then sunshine; overcast afternoon. No rain.

1730, walked to 2.1 and back to Brothams. PR. 15 N., 2 ad. C. ab.

1.96 E., 3 blues. 1815, 2.15, turn N. 1.27 W., 3 ad + C. ab. Why

so few out? Census of C.B.K alone.

4 Journal 5 5 November 1965. Visited Hima Block of forest, & saw Eucalyptus ^{said} damaged by colobus (abys.). Eve road census. Rain midday.

5 6 November 1965 Visited Ft. Portal. Spent 1½ hrs. with ranger

at Selukale, Protosio Muyanja (tree <1 yr.). He said blocks 6 +

7 (boundary at K-7 sign nr. 0.03) cut about 6 yrs. ago, sprayed

about one year ago. He said Olea ^{melvitchii} most common this area, also

Strombosia. But Newtoxia most in reproduction, & Strombosia prob.

second. Olea & Pygmaeum colonizers. Few Parinari (dense foliage

of small dark leaves). Poisoned sp. include Celtis, Ficus, Balanites,

Makhtaba (if from road), Croton megal., others. All over 12" girth.

(I saw some large Parinari dead, killed because poor form.) Fagara

fairly common (big comp. lf.), but I have not seen monkeys eat (spiny).

Evening walking census. Rain midday.

Journal



Monkey Census

4

5 November 1965

Kibale Forest, Tororo Uganda

some
missed
dates

Walking fr. Bridham House, 1700. PR. 155; blue coll. 15N, 7 or + C. ab.
(1 juv.). 1.2W, 6 (1 juv.). 1.25W., 7 or + C. ab. 1.35W.; 2 ad. C. ab.
1.35W., 2 redtails. 1.8W, 9+ redt. + 9± blues. 2.15W., 1 redt., 1 blue.
1810, 2.1, turned S.N. 1.95W., 5 (beard-tailed). 1.75W., 7 blue (3 juv.)
+ 2 redt. 1835, 1.38W., 2 ad. C. ab. as before. 1.33E., 3 redt. This
in overcast eve. after midday rains; many monkeys out.

5

6 November 1965. Evening, Brid. house leave 1600, walking. Ci & Ci-str. clouds
0.8, none. 0.85W., 4 or + C. badius. 1.0W, blue collab. 1.73E., 3
redt. 1.75W, blue coll. 2 redtails. 1.95W 100yds, "beard tail"
gp; + 4 or + C. ab. + white inf. (3♀♀). 1730, 2.15, turned N. Calm;
weak sun. 1.65W 100yds, 2 redt. 1.4W. 100yds, 2 ad. C. ab., 1 blue.
1.36W. 100yds, 2 blue. 1.1E., 14 + C. badius. 1.05E., blue coll.
Back to Bridham's house.

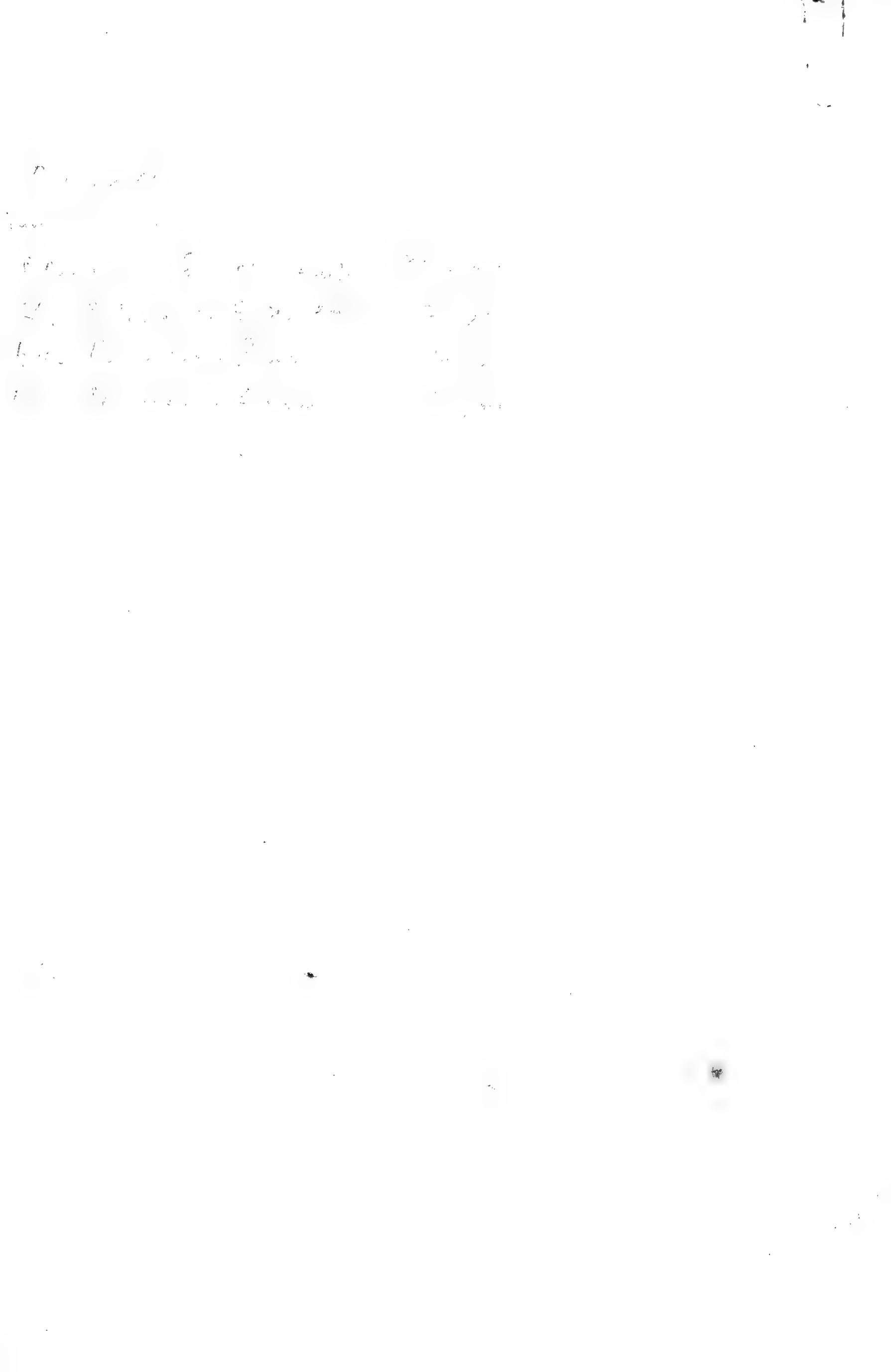
6 November 1965. Hemia Block forest road. Walked ~~near~~ 1000 to 1100
& return, in mod. closed forest w. much Olea, Celtis. Saw 1 redtail, 2 or +
redt., 2 ad. C. abrys, 6 C. ab. (juv.) + 1 C. badius. Carried sun
, blue, 5 C. abrys, 6 C. ab. (1 juv.) (not same). ~~blue~~ ^{return tree,} 1 blue,
2 or + C. abrys. Evening, Savannah Rd., after .87 rain midday. 1630,
depart Brid. House. (Overcast). 1.23W., 6 C. ab. (1 juv. 1); + 3 redtails.
1.63E., 9 redtails (3 juvs.). 1.93W., beard tail gp. 5 ad. C. ab. (+ wh. inf.).
1730, turned N; occas. sunshine. Same at 1.93W., 1.23W. 1.0E., 5 at
C. ab. (1 juv.) + white inf. 0.95W., 5 or + C. ab. (2 juv. 3) 1815. None
0.8 area - Bridham's NW border, 8 (2 juv. 3). PR. 255, 1 redt.

7 November 1965. Rain midday. Walking. Left Brid. house 1700. 1715, .93E., 5 (juv.)
+ white inf., C. ab. .93W., 2 ad. C. ab. .8E, 3 or + blue, 200 yds. 1725, 1.2W, 6 (1 juv.) C. ab.
1.26E., 1 redt. 1755, 2.15, turned N. 1.95W, 2 ad. C. ab. (prob. beard tail gp.). 1.9W,
2 ad. C. ab. 1.69W., 1 ad. C. ab. 1.35W, ⁵ blue. 1.2W., 5 (+ bl. inf.). PR. 1N, blue. PR. 255,
1 redt.

E.J.
Inford, E.B.

Catalogue

1970 # 11-32



EOKford

Specimen Notes

1970 1 mi SW Limantour, Delta R., 100 ft. elev.

13 July ~~Amphibians~~ 5200 ft. elev. 100 ft. elev.

23 July ^{200 ft. elev.} 1 mi SW Limantour, Delta R., 100 ft. elev.
Sulfur rock outcrop, 100 ft. elev. (100 ft. elev.)

14 July

13 mi SW Limantour, Delta R., 100 ft. elev.

14 July 15 mi SW Limantour, Delta R., 100 ft. elev.

24 July ^{100 ft. elev.} 1 mi SW Limantour, Delta R., 100 ft. elev.
Rock outcrop, 100 ft. elev. (100 ft. elev.)

15 July 15 mi SW Limantour, Delta R., 100 ft. elev. (100 ft. elev.)

25 July ^{100 ft. elev.} 1 mi SW Limantour, Delta R., 100 ft. elev.

15 July ^{100 ft. elev.} 15 mi ESE Larkspur, 100 ft. elev.

26 July ^{100 ft. elev.} 1 mi SW Limantour, Delta R., 100 ft. elev.

27 July ^{100 ft. elev.} 1 mi SW Limantour, Delta R., 100 ft. elev.

28 July ^{100 ft. elev.} 1 mi SW Limantour, Delta R., 100 ft. elev.

~~July 29~~ ^{mid-July} 20 July 100 ft. elev. 100 ft. elev.

~~July 30~~ ^{mid-July} 20 July 100 ft. elev. 100 ft. elev.

~~July 31~~ ^{mid-July} 20 July 100 ft. elev. 100 ft. elev.

25 July 1 mi SW Limantour, Delta R., 100 ft. elev.

26 July 1 mi SW Limantour, Delta R., 100 ft. elev.

Plants on rocks in barren area.



MUSEUM OF
VERTEBRATE ZOOLOGY
REPRINT LIBRARY

